



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

UNDERGROUND INJECTION CONTROL PROGRAM

Final Area Permit

Class II Enhanced Recovery Unit

EPA Area Permit No. UT2736-00000

Field Name: Antelope Creek

Unit Name: Antelope Creek Waterflood

County & State: Duchesne County, Utah

issued to:

Petroglyph Operating Company, Inc.

6209 North Highway 61

Hutchinson, Kansas 67502

Location

CZ

I2 GR slants?

Water Sample - TDS



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*lean under
UT 20736 - 00000
67 Final Area Permit
Issued 7/12/1994
74 Final Area Permit
Effective 7/12/1994*



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SOB

p.4 Add wells
5 tests/Logs

PART I. AUTHORIZATION TO CONVERT/OR CONSTRUCT AND INJECT

Pursuant to the Underground Injection Control Regulations of the U. S. Environmental Protection Agency (EPA) codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147,

Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

is hereby authorized, under this area permit, to convert four (4) existing oil production wells to Class II enhanced recovery injection wells located within the Antelope Creek Field, Duchesne County, Utah. Each of these proposed wells are located within the permitted area which is defined as follows:

Township 5 South, Range 3 West, Duchesne County, Utah

Sections 2, 3, 4, 5, 6 (SE/4 of SE/4), 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, and 33.

The Area of Review (AOR) is defined as that area subtended by a line drawn one-quarter (1/4) mile beyond and around the boundaries described above. All of The Sections in T5S-R3W listed above are within the boundaries of the Uintah-Ouray Indian Reservation.

Injection will be for the purpose of enhanced recovery of oil so that Petroglyph Operating Company, Inc. may economically produce oil from the Antelope Creek Field, in accordance with conditions set forth herein, and initially utilizing the following currently existing production wells located in T5S-R3W:

<u>WELL NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
? Ute Tribal #1-8	NW/4 of NW/4 Section 8	UT2736-04201
OK Ute Tribal #5-8	SE/4 of NW/4 Section 8	UT2736-04203
→ Ute Tribal #4-18	NW/4 of NE/4 Section 18	UT2736-04202
→ Ute Tribal #5-18	NE/4 of SE/4 Section 18	UT2736-04204

Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received written authorization from the Director. "Prior to Commencing Injection" requirements are set forth in Part II, Section C. 1. & 2. of this permit.

All conditions set forth herein refer to Title 40 Parts 124, 144, 146, and 147 of the Code of Federal Regulations (CFR) and are regulations that are in effect on the date that this permit becomes effective.

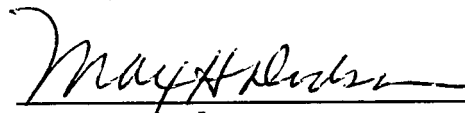
This permit consists of a total of 46 pages and includes all items listed in the Table of Contents. Further, it is based upon representations made by the permittee and on other information contained in the administrative record. **It is the responsibility of the permittee to read and understand all provisions of this permit.**

This area permit and the authorization to inject are issued for the operating lives of the wells, unless terminated (Part III, Section B); **authorization to inject shall automatically expire due to prolonged postponement of conversion [Part II, Section A. 1. (b)].** The area permit will be reviewed by EPA at least every five (5) years to determine whether action under 40 CFR §144.36(a) is warranted.

The Northern Ute Indian Tribe of the Uintah-Ouray Reservation may apply for primary enforcement responsibility of the UIC program, thereby assuming primary responsibility for regulating this permittee. Notwithstanding approval of the Tribal UIC primacy application, EPA retains responsibility for directly administering and enforcing this federal permit, unless otherwise specifically addressed in the EPA/Tribe MOA (40 CFR §145.25). If EPA determines that the Tribe has issued an equivalent permit under an EPA approved UIC program, EPA and the permittee may agree to terminate this federal permit.

Issued this 12th day of July, 1994.

This permit shall become effective July 12, 1994.



* Max H. Dodson
Director
Water Management Division

NOTE: The person holding this title is referred to as the "Director" throughout this permit.

PART II. SPECIFIC PERMIT CONDITIONS

A. WELL CONVERSION/CONSTRUCTION REQUIREMENTS

1. Casing and Cementing.

- (a) The proposed conversion details submitted with the application are hereby incorporated into this permit as Appendix A, which graphically displays the present casing and cementing details. These plans have been reviewed by the EPA and are consistent with underground injection control (UIC) requirements and shall be binding on the permittee.
- (b) Postponement of conversion. If at least one of the wells under consideration is not converted to injection status within one (1) year from the effective date of this permit, the permit shall automatically expire. The permittee may request an extension for the conversion of the first well. This request shall be in writing to the Director, and shall state the reasons for the delay in conversion, and confirm the protection of all underground sources of drinking water (USDWs). The extension under this section may not exceed one (1) year.

Financial responsibility shall be maintained during the period of inactivity in accordance with Part II, Section F. Once a permit expires under this part, the full permitting process, including opportunity for public comment, must be repeated before authorization to inject will be reissued.

2. Requirements for Additional Wells. The permittee may convert and/or construct and operate additional wells within the permitted area, provided that all additional wells meet all conditions as set forth in the permit. All sections of this permit apply to any additional well(s) approved for injection.

(a) Casing and Cementing.

- (i) For any newly drilled injection well(s) constructed under this provision, the long string and surface casing shall be secured to the wellbore, with cement, through any subsurface intervals associated with USDWs.

- (ii) For any converted well(s), the long string and surface casing shall be secured to the wellbore in a manner similar to construction standards required of the proposed injection well(s) listed in this permit.
 - (b) Conversion/Construction Notification Requirement. The permittee shall give the Director thirty (30) days notice before proceeding with any activity with an additional well(s). Also the permittee shall submit a plan consisting of a well schematic and construction details, or modifications, for any such proposed enhanced recovery injection well(s). The plan must first be approved by the Director, and the permittee shall not begin implementation of the plan until after receiving written authorization from the Director.
 - (c) Formation Logging and Testing. All required testing and logging has been performed in accordance with Part II, Section 6. (a) & (b). For wells being converted (from production to injection), only those logs or tests which can physically be performed are required.
 - (d) Area of Review (AOR) Requirements. In conjunction with (b) above, the permittee shall submit information on any well, within a 1/4-mile of the Area Permit boundary, which was not included in the original application. This information shall include the well location, casing and cementing details, top of cement (calculated or logged), depths to tops and bottom of any USDWs, formation depths, and P&A plan(s).
 - (e) Corrective Action. For any wells, that penetrate the injection zone within the AOR, which are improperly sealed, completed, or abandoned, the Director may require such corrective action as is necessary to prevent movement of fluid out of the injection zone and into USDWs. Requirements may include such actions as remedial well construction or injection pressure limitations.
3. Tubing and Packer Specifications. The injection wells will be equipped with 2-7/8 inch tubing, with a packer set above the injection zone. The permittee is required to set the packer at a distance of no more than 100 feet above the uppermost perforations.

4. Monitoring Devices. The operator shall provide and maintain in good operating condition:
- (a) a tap on the suction line for the purpose of obtaining representative samples of the injection fluids;
 - (b) two (2), one-half (1/2) inch Female Iron Pipe (FIP) fittings, isolated by plug or globe valves, and located: 1) at the wellhead on the tubing; and 2) on the tubing/casing annulus, and positioned to allow attachment of 1/2 inch Male Iron Pipe (MIP) gauges or the attachments for equivalent "quick-disconnect" gauges.
- The operator shall always have in his possession calibrated gauges for the use of their field personnel to monitor tubing injection pressure and tubing/casing annulus pressure. The calibrated gauges shall be certified for at least ninety-five (95) percent accuracy throughout the range of anticipated injection pressures; and
- (c) a non-resettable flow meter with cumulative volume recorder that is certified for at least ninety-five (95) percent accuracy, throughout the range of injection rates allowed by the permit.
5. Proposed Changes and Workovers. The permittee shall give advance notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted well. Major alterations or workovers of the permitted well shall meet all conditions as set forth in this permit. A major alteration or workover shall be considered any work performed, which affects casing, packer(s), or tubing. For the conversion or construction of any additional well(s), the permittee shall give the Director thirty (30) days notice of the proposed activity as per Part II, Section A. 2.(b). A demonstration of mechanical integrity shall be performed within thirty (30) days of completion of any workover and/or alterations, and prior to resuming injection activities in accordance with Part II, Section C. 3. (a).

The permittee shall provide all records of well workovers, logging, or other test data to EPA within sixty (60) days of completion of the activity. Appendix B contains samples of the appropriate reporting forms.

6. Formation Testing and Logging.

- (a) Testing. Upon conversion and/or construction of each well, the permittee is required to determine the injection zone fluid pore pressure (static bottom hole pressure) prior to commencement of disposal operations.
- (b) Step-Rate Test. A step-rate injectivity test shall be performed on at least one (1) of the proposed injection wells to determine the formation parting pressure and the results submitted to the EPA. This testing may be performed prior to full operation, or within three (3) months after injection operations are initiated.
- (c) Logging. The permittee shall conduct appropriate down-hole logging prior to the setting of production casing on all newly constructed wells. The following suite of logs are required; Dual Induction (DIL) and Compensated Density/Neutron (CNL-FDC). A Cement Bond/Gamma Ray log shall be run after casing is set. All logging results shall be accompanied by a brief written narrative (prepared by a knowledgeable log analyst) identifying the USDWs, formation tops, confining layers, injection zones and top of cement.

B. CORRECTIVE ACTION

The operator is not required to take any corrective action on any of the forty-nine (49) production wells or the five (5) plugged and abandoned wells within the area of review (AOR), before the effective date of the permit. The manner in which the wells are cased and cemented will prevent any migration of fluids from the injection zones into underground sources of drinking water (USDWs) in the Uinta Formation.

C. WELL OPERATION

- 1. Prior to Commencing Injection (Initial Wells). Individual enhanced recovery injection operations for the four (4) existing production wells (Ute Tribal #1-8, #5-8, #4-18 and #5-18) may not commence until the permittee has complied with both (a) and (b), as follows:

(a) All construction for each respective well is complete and the logging and/or testing requirements have been fulfilled, and the permittee has submitted a Well Rework Record (EPA Form 7520-12). Appendix B contains samples of the appropriate reporting forms.

(i) The Director has inspected or otherwise reviewed the newly converted injection well(s) and he has notified the operator that the well(s) is in compliance with the conditions of the permit; or

(ii) The Permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well(s) within thirteen (13) days of the date the Director has received the Well Rework Record, paragraph (a) above, in which case prior inspection or review is waived and the permittee may commence injection. However, in all circumstances, item (b) below must be satisfied.

(b) The permittee demonstrates that a given well(s) has mechanical integrity in accordance with 40 CFR § 146.8 and Part II, Section C. 3. (a), below, and has received notice from the Director that such a demonstration is satisfactory. The permittee shall notify EPA two (2) weeks prior to conducting this test so that an authorized representative of the EPA may be present to observe the test. Results of the test shall be submitted to the Director as soon as possible, but no later than thirty (30) days after the demonstration.

2. Prior to Commencing Injection (Additional wells). Injection operations for additional wells may not commence until the permittee has complied with both (a) and (b) below:

(a) All required formation testing and logging has been performed in accordance with Part II, Section A. 2. (c), conversion and/or construction is complete, and the permittee has submitted the pertinent Well Completion Reports (EPA Form No. 7520-10) or Well Rework Record (EPA Form No. 7520-12) in Appendix B; and

- (i) the Director has inspected or otherwise reviewed any new injection wells and finds them in compliance with the conditions of the permit; or
 - (ii) the permittee has not received notice from the Director of his, or her, intent to inspect, or otherwise review, any of the new injection wells within thirteen (13) days of the date of receipt of the notice in paragraph (i) of this permit, in which case prior inspection or review is waived and the permittee may commence injection. (Note: In all circumstances item (b), below, must also be satisfied.)
- (b) The permittee demonstrates that a given well(s) has mechanical integrity in accordance with 40 CFR § 146.8 and Part II, Section C. 3. (a), and the permittee has received notice from the Director that such a demonstration is satisfactory. The permittee shall notify EPA two (2) weeks prior to conducting this test so that an authorized representative may be present to observe the test. Results of the test shall be submitted to the Director as soon as possible but no later than thirty (30) days after the demonstration.

3. Mechanical Integrity.

- (a) Method of Demonstrating Mechanical Integrity.
A demonstration of the absence of significant leaks in the casing, tubing, and/or packer must be made by performing a tubing/casing annulus pressure test. This test shall be for a minimum of forty-five (45) minutes at: (1) a pressure of 300 pounds per square inch gauge (psig) measured at the surface, if the well is shut-in; or (2) a pressure differential of 200 psig between the tubing and the tubing/casing annulus, if injection activities are continued during the test. The tubing/casing annulus shall be filled with a non-corrosive fluid (either a non-toxic liquid or the injection liquid) at least twenty-four (24) hours in advance of the test. Pressure values shall be recorded at five-minute intervals. A well passes the mechanical integrity test if there is less than a ten (10) percent decrease or increase in pressure over the forty-five (45) minute period.

- (b) Schedule for Demonstration of Mechanical Integrity. A demonstration of mechanical integrity shall be made at regular intervals, no less frequently than once every five (5) years, in accordance with 40 CFR § 146.8, and paragraph (a), above, unless otherwise modified. Initiation of mechanical integrity demonstrations will be according to the following provisions:
- (i) It shall be the permittee's responsibility to arrange and conduct the routine five-year tubing/casing annulus pressure test demonstration. The permittee shall notify the Director of his intent to demonstrate mechanical integrity at least two (2) weeks days prior to such demonstration. Results of the test shall be submitted to the Director as soon as possible, but no later than sixty (60) days after the demonstration.
 - (ii) In addition to any demonstration made under paragraph (i) above, the Director may require a demonstration of mechanical integrity at any time during the permitted life of a well.
- (c) Loss of Mechanical Integrity. If the well(s) fail to demonstrate mechanical integrity during a test, or a loss of mechanical integrity as defined by 40 CFR § 146.8 becomes evident during operation, the permittee shall notify the Director in accordance with Part III, Section E. 10. of this permit. Furthermore, **injection activities shall be terminated immediately;** and operation shall not be resumed until the permittee has taken necessary actions to restore integrity to the well and EPA gives approval to recommence injection.
4. Injection Interval. Fluid injection shall be limited to the gross interval within the Green River Formation between the approximate depths of 3,750 and 5,850 feet. The Green River Formation, from its average top at ±1,410 feet to ±3,974 feet (upper confining zone), is composed of impermeable calcareous shales and continuous beds of microcrystalline dolomite. Petroglyph proposes to inject water into multiple lenticular sands which are distributed throughout a 2,100-foot section of the Green River Formation. These sands are individually separated by shale which act as isolation barriers (confining zones) for the waterflood.

5. Injection Pressure Limitation.

- (a) Injection pressure, measured at the surface, shall not exceed an amount that the Director determines is appropriate to ensure that injection does not initiate new fractures or propagate existing fractures in the confining zone adjacent to USDWs.
- (b) The exact pressure limit may be increased or decreased by the Director to ensure that the requirements in paragraph (a) are fulfilled. In order to determine an exact pressure limit, the permittee shall conduct a step-rate injection test or other authorized well test(s) that will serve to determine the fracture pressure of the injection zone. Test procedures shall be pre-approved by the Director. The Director will specify in writing, to the permittee, any increase or decrease to the injection pressure based upon the test results and/or other parameters reflecting actual injection operations. Until such time that this demonstration is made, the initial injection pressure, measured at the surface, shall not exceed 1,900 psig.

6. Injection Volume Limitation. There is no limitation on the number of barrels of water per day (BWPD) that shall be injected into the Green River sand perforations, provided further that in no case shall injection pressure exceed that limit shown in Part II, Section C. 5. (b) of this permit.

7. Injection Fluid Limitation. Injection fluids are limited to those which are identified in 40 CFR § 144.6. (b) (2) as fluids used for enhanced recovery of oil or natural gas. The permittee shall provide a listing of the sources of the injected fluids in accordance with the reporting requirements in Part II, Section D. 4. of this permit.

8. Annular Fluid. The annulus between the tubing and the casing shall be filled with fresh water and/or brines treated with a corrosion inhibitor, a scale inhibitor, and an oxygen scavenger, or other fluid as approved, in writing, by the Director.

9. Operation of Additional Wells. The permittee may operate additional wells within the permit area, provided that the additional wells meet all conditions as set forth in the permit.

D. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Well Monitoring Program. Samples and measurements shall be representative of the monitored activity. The permittee shall utilize the applicable analytical methods described in Table 1 of 40 CFR § 136.3, or in Appendix III of 40 CFR Part 261, or in certain circumstances, by other methods that have been approved by the EPA Administrator. Monitoring shall consist of:
 - (a) Analysis of the disposed fluids, performed:
 - (i) annually for Total Dissolved Solids, Ph, Specific Conductivity, and Specific Gravity from the common facility; however, if injection is maintained from more than one well from each common facility, then only one annual analysis is required for that facility.
 - (ii) whenever there is a change in the source of disposed fluids. A comprehensive water analysis shall be submitted to the Director within thirty (30) days of any change in injection fluids.
 - (b) Observations of flow rate, injection pressure, annulus pressure, and cumulative volume shall be conducted weekly. All observations shall be observed and/or measured at approximately the same time. Observations of each shall be recorded monthly.
- 2) Monitoring Information. Records of any monitoring activity required under this permit shall include:
 - (a) The date, exact place, the time of sampling or field measurements;
 - (b) The name of the individual(s) who performed the sampling or measurements;
 - (c) The exact sampling method(s) used to take samples;
 - (d) The date(s) laboratory analyses were performed;

- (e) The name of the individual(s) who performed the analyses;
- (f) The analytical techniques or methods used by laboratory personnel; and
- (g) The results of such analyses.

3. Recordkeeping.

- (a) The permittee shall retain records concerning:
 - (i) the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment which has been carried out in accordance with the Plugging and Abandonment Plan shown in Appendix C, and is consistent with 40 CFR § 146.10.
 - (ii) all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least five (5) years from the date of the sample, measurement or report throughout the operating life of the well.
- (b) The permittee shall continue to retain such records after the retention period specified in paragraphs (a) (i) and (a) (ii) unless he delivers the records to the Director or obtains written approval from the Director to discard the records.
- (c) The Permittee shall maintain copies (or originals) of all pertinent records at the office of Petroglyph Operating Company, Inc., 6209 North Highway 61, Hutchinson, Kansas 67502.

4. Annual Reporting. The permittee shall submit an Annual Report, whether injecting or not, to the Director summarizing the results of the monitoring required by Part II, Section D. 1. (a) and (b) of this permit. The permittee shall also include a listing of all sources of the fluids injected during the year identifying the source by either the well name(s), the field name(s), or the facility name(s).

The first Annual Report shall cover the period from the effective date of the permit through December 31 of that year. Subsequent Annual Reports shall cover the period from January 1 through December 31. **Annual Reports shall be submitted by February 15 of the following year following data collection.** Appendix B contains Form 7520-11 which may be copied and used to submit the Annual Report.

E. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment. The permittee shall notify the Director forty-five (45) days before abandonment of the well.
2. Plugging and Abandonment Plan. The plugging and abandonment plans submitted by the permittee, are incorporated into the permit, (Appendix C of the Permit) and shall be binding on the permittee. These plans have been reviewed and approved by the EPA. The EPA reserves the right to change the manner in which the well will be plugged if the well is modified during its permitted life or if the well is not made consistent with EPA requirements for construction and mechanical integrity. The Director may require the permittee to update the estimated plugging cost periodically. Such estimates shall be based upon costs which a third party would incur to plug the well according to the plan.
3. Cessation of Injection Activities. After a cessation of operations of two (2) years, the permittee shall plug and abandon the well in accordance with the Plugging and Abandonment Plan, unless the permittee:
 - (a) has provided notice to the Director; and
 - (b) has demonstrated that the well will be used in the future; and
 - (c) has described actions or procedures, satisfactory to the Director, that will be taken to ensure that the well will not endanger underground sources of drinking water during the period of temporary abandonment.

4. Plugging and Abandonment Report(s). Within sixty (60) days after plugging the well, the permittee shall submit a report on Form 7520-13 to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and the report shall consist of either: (1) a statement that the well was plugged in accordance with the plan; or (2) where actual plugging differed from the plan, a statement that specifies the different procedures followed.
5. Plugging of Additional Wells. The permittee may plug and abandon any future additional enhanced recovery injection wells within the permit area that were converted or constructed under Part II, Section A., provided that the plugging and abandonment meets all conditions as set forth in this permit.

F. FINANCIAL RESPONSIBILITY

1. Demonstration of Financial Responsibility. The permittee is required to maintain continuous financial responsibility and resources to close, plug, and abandon the injection wells as provided in the plugging and abandonment plan.
 - (a) The permittee may submit a written request to EPA to change the type of financial mechanism or instrument utilized. A change in demonstration of financial responsibility must be approved in writing by the Director.
2. Insolvency of Financial Institution. In the event that an alternate demonstration of financial responsibility has been approved under (a), above, the permittee must submit an alternate demonstration of financial responsibility acceptable to the Director within sixty (60) days after either of the following events occur:
 - (a) The institution issuing the trust or financial instrument files for bankruptcy; or
 - (b) The authority of the trustee institution to act as trustee, or the authority of the institution issuing the financial instrument, is suspended or revoked.

3. Cancellation of Demonstration by Financial Institution.
The permittee must submit an alternative demonstration of financial responsibility acceptable to the Director, within sixty (60) days after the institution issuing the trust or financial instrument serves 120-day notice to the EPA of their intent to cancel the trust or financial instrument.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground disposal in accordance with the conditions of this permit. The permittee, as authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other disposal activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or otherwise adversely affect the health of persons. Any underground disposal activity not authorized in this permit or otherwise authorized by permit or rule is prohibited. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any enforcement action brought under the provisions of Section 1431 of the Safe Drinking Water Act (SDWA), 42 USC §300i, or any other law governing protection of public health or the environment for any imminent and substantial endangerment to human health, or the environment, nor does it serve as a shield to the permittee's independent obligation to comply with all UIC regulations.

B. PERMIT ACTIONS

1. Modification, Reissuance, or Termination. The Director may, for cause or upon a request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR §§ 124.5, 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR § 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.
2. Conversions. The Director may, for cause or upon a request from the permittee, allow conversion of the well from a Class II salt water disposal well to a non-Class II well. Requests to convert the disposal well from its Class II status to a non-Class II well,

such as, a production well, must be made in writing to the Director. Conversion may not proceed until a permit modification indicating the conditions of the proposed conversion is received by the permittee. Conditions of the modification may include such items as, but is not limited to, approval of the proposed well rework, follow up demonstration of mechanical integrity, and well specific monitoring and reporting following the conversion.

3. Transfers. This permit is not transferrable to any person except after notice is provided to the Director and the requirements of 40 CFR § 144.38 are complied with. The Director may require modification, or revocation and reissuance, of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.
4. Operator Change of Address. Upon the operator's change of address, notice must be given to the appropriate EPA office at least fifteen (15) days prior to the effective date.

C. SEVERABILITY

If any provision of this permit or the application of any provision of this permit to any circumstance is stayed or held invalid, all remaining provisions of this permit shall remain fully effective and enforceable, except for those provisions which are not severable from the stayed or invalid provision.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 40 CFR §144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). EPA will deny claims of confidentiality including but not limited to the following information:

- The name and address of the permittee; and
- Information which deals with the existence, absence or level of contaminants in drinking water.

E. GENERAL DUTIES AND REQUIREMENTS

1. Duty to Comply. The permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification. Such noncompliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).
2. Penalties for Violations of Permit Conditions. Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to such actions pursuant to the RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.
3. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.
5. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.
6. Duty to Provide Information. The permittee shall furnish the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and

reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

7. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 - (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - (d) Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the SDWA any substances or parameters at any location.
8. Records of Permit Application. The permittee shall maintain records of all data required to complete the permit application and any supplemental information submitted for a period of five (5) years from the effective date of this permit. This period may be extended by request of the Director at any time.
9. Signatory Requirements. All reports or other information requested by the Director shall be signed and certified according to 40 CFR § 144.32.
10. Reporting of Noncompliance.
 - (a) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(b) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than thirty (30) days following each schedule date.

(c) Twenty-four Hour Reporting.

(i) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances by telephoning EPA at (303) 293-1550 (during normal business hours) or at (303) 293-1788 (for reporting at all other times). The following information shall be included in the verbal report:

(A) Any monitoring or other information which indicates that any contaminant may cause endangerment to an underground source of drinking water (USDW).

(B) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs.

(ii) A written submission shall also be provided to the Director within five (5) days of the time the permittee becomes aware of the potential for endangerment to health or the environment. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(d) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part III, Section E. 10. (c) (ii) of this permit.

- (e) Other Information. Where the permittee becomes aware that any relevant facts were not submitted in the permit application, or incorrect information was submitted in a permit application or in any report to the Director, the permittee shall submit such correct facts or information within two (2) weeks of the time such information becomes known.

APPENDIX A

(CONVERSION/CONSTRUCTION DETAILS)

Ute Tribal #1-8
Ute Tribal #5-8
Ute Tribal #4-18
Ute Tribal #5-18

UPON REENTRY OF THESE OIL WELLS, THE CONVERSION TO AN
ENHANCED RECOVERY WELL WILL BE AS FOLLOWS:

- (1) Move in and rig up service unit (MIRUSU), trip out of hole (TOH) with rods and tubing.
- (2) Trip in hole (TIH) w/ bit and casing scraper to total depth (TD) to ensure that the casing is clean. Any fill encountered will be circulated out of the well.
- (3) Cement squeeze and/or isolate by CIBP selected perforations as required. The proposed downhole injection equipment will then be run on tubing and set at the appropriate depth.
- (4) The casing annulus will be filled with the recommended packer fluid.
- (5) Notify EPA of Mechanical Integrity Testing, with EPA authorized representative present, run MIT, if passed, place well on injection status upon approval from the Director.

**Ute Tribal #1-8
Wellbore Diagram
After Conversion**

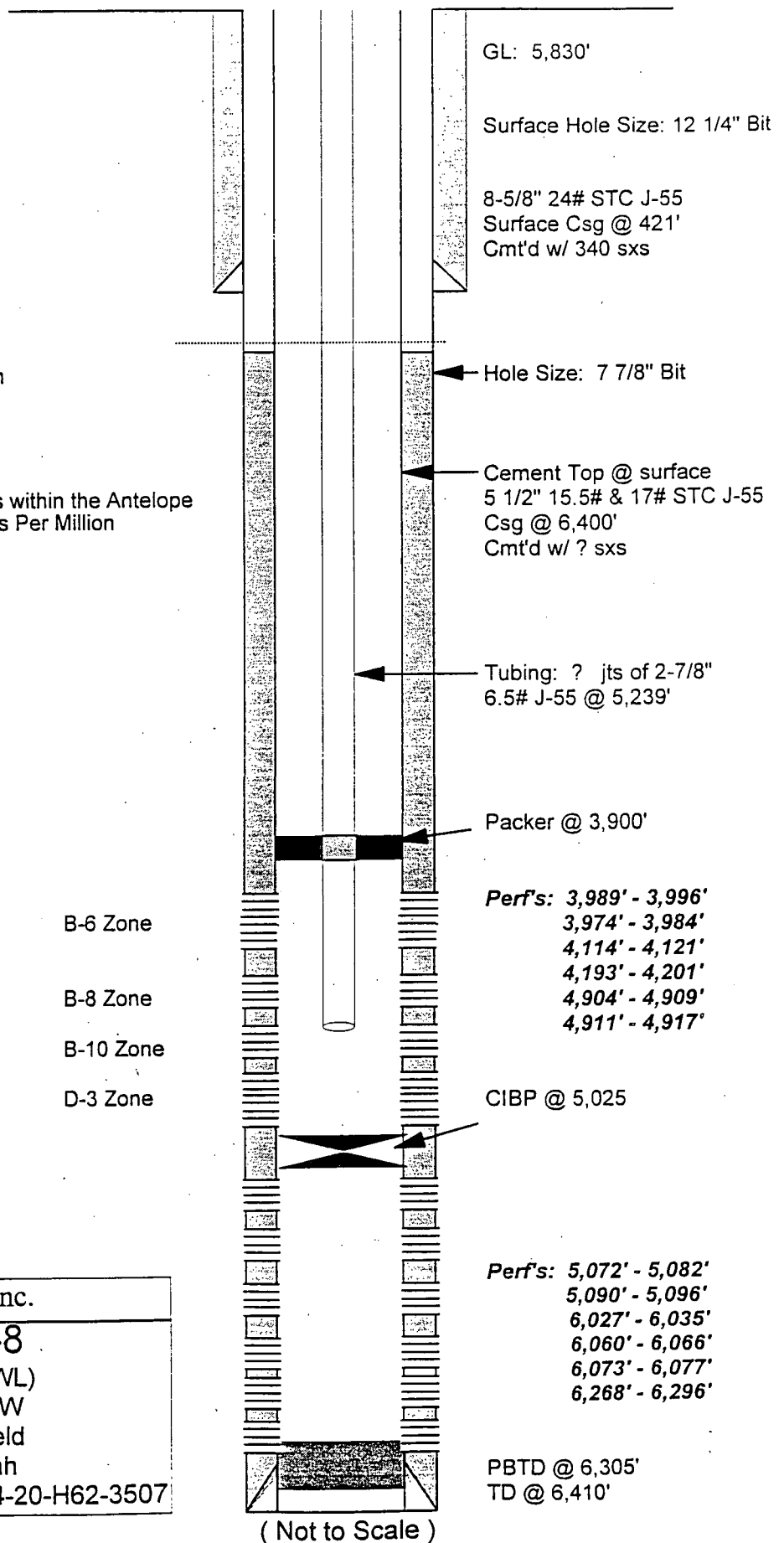
Water Samples and Locations

No USDW found in Uinta Formation

Top of Green River Formation at 1,270'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope Creek Project Area equals 16,722.55 Parts Per Million



B-6 Zone

B-8 Zone

B-10 Zone

D-3 Zone

Inland Resources Inc.
Ute Tribal 1-8
(754' FNL & 888' FWL)
NW NW 8-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-30759; Lease #14-20-H62-3507

**Ute Tribal #5-8
Wellbore Diagram
After Conversion**

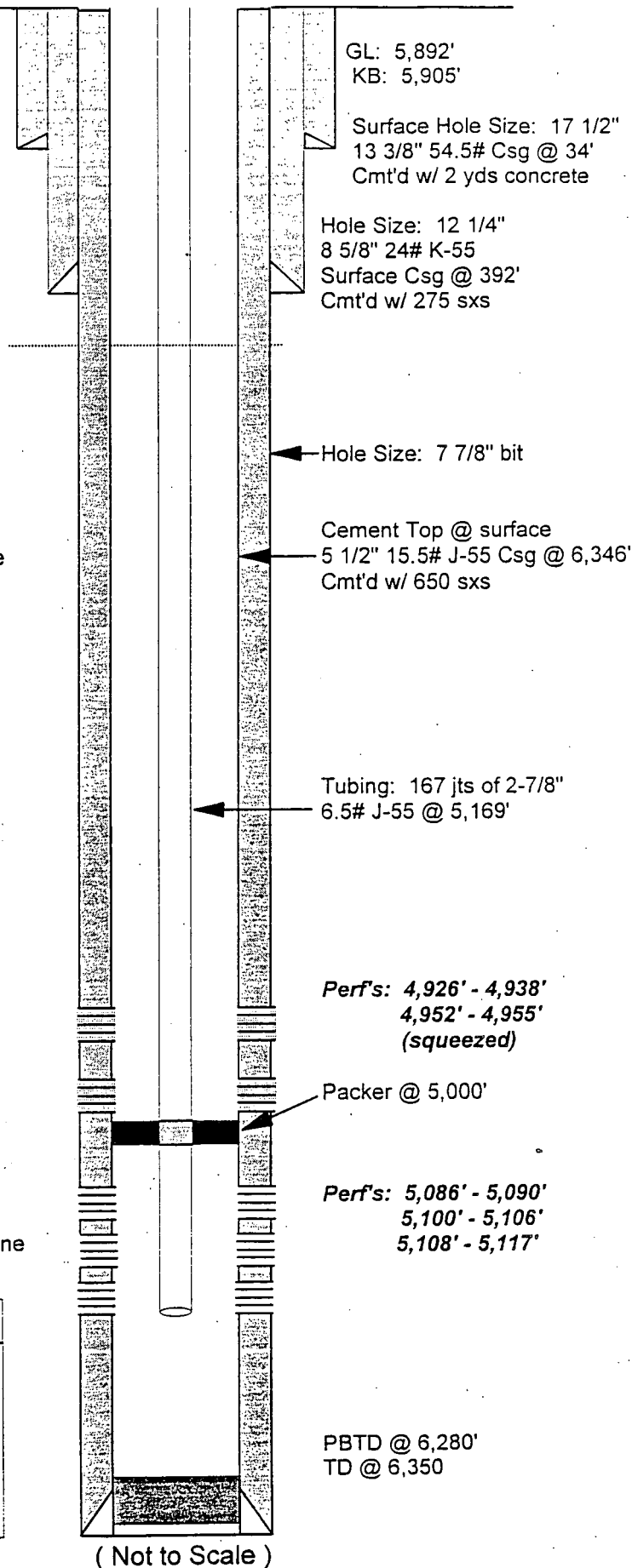
Water Samples and Locations

USDW found in Uinta Formation
Water found at 200' with total dissolved solids of 9885 Parts
Per Million

Top of Green River Formation at 1,360'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million



Inland Resources Inc.
Ute Tribal 5-8
(1,550' FNL & 1,550' FWL)
SE NW Section 8-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31307; Lease #14-20-H62-3507

(Not to Scale)

Ute Tribal #4-18
Wellbore Diagram
After Conversion

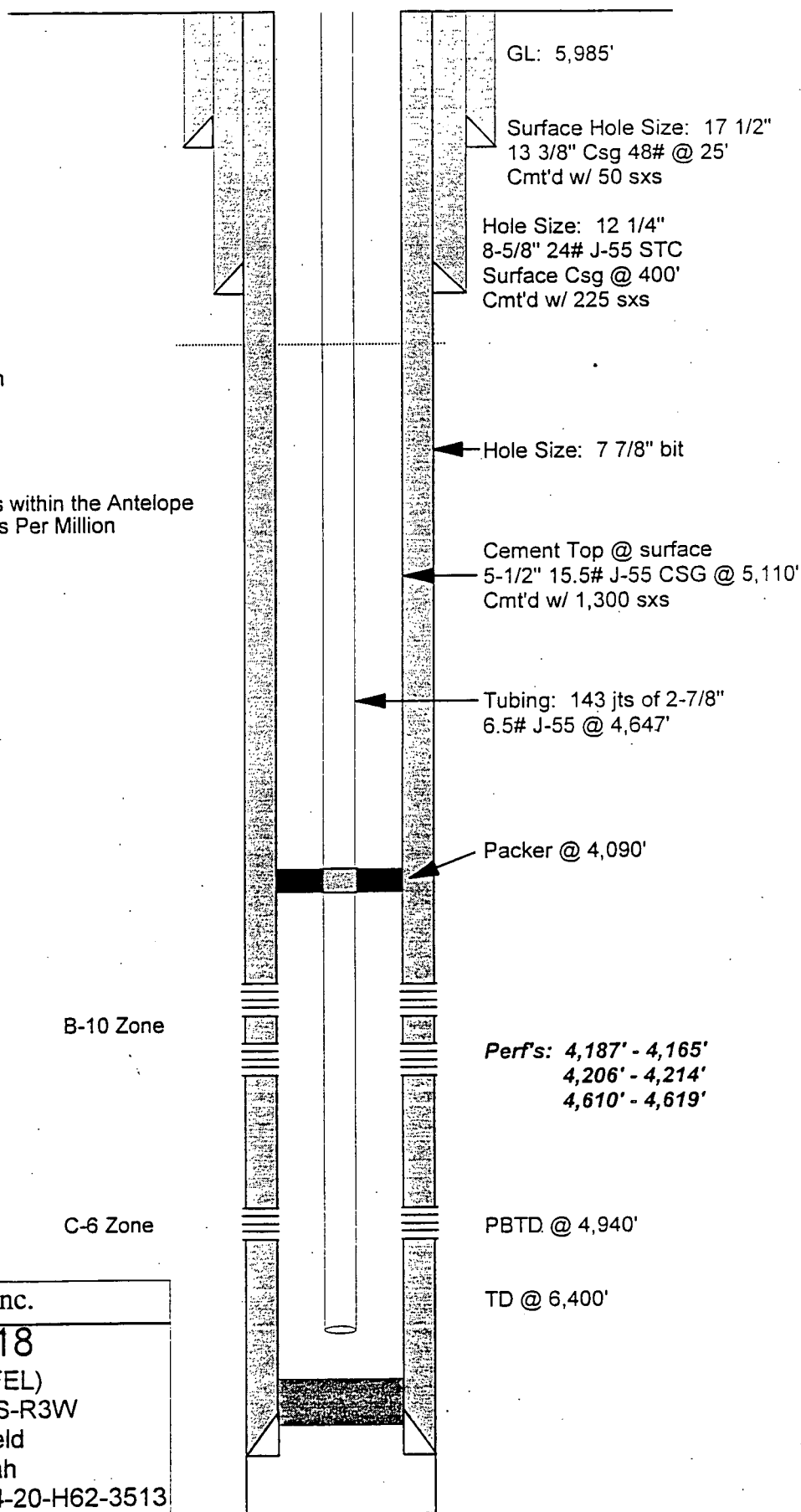
Water Samples and Locations

No USDW found in Uinta Formation

Top of Green River Formation at 1,510'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million
(See Exhibit 2 this section)



Inland Resources Inc.
Ute Tribal 4-18
(812' FNL & 1,768' FEL)
NW NW Section 18-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31091; Lease #14-20-H62-3513

(Not to Scale)

Ute Tribal #5-18
Wellbore Diagram
After Conversion

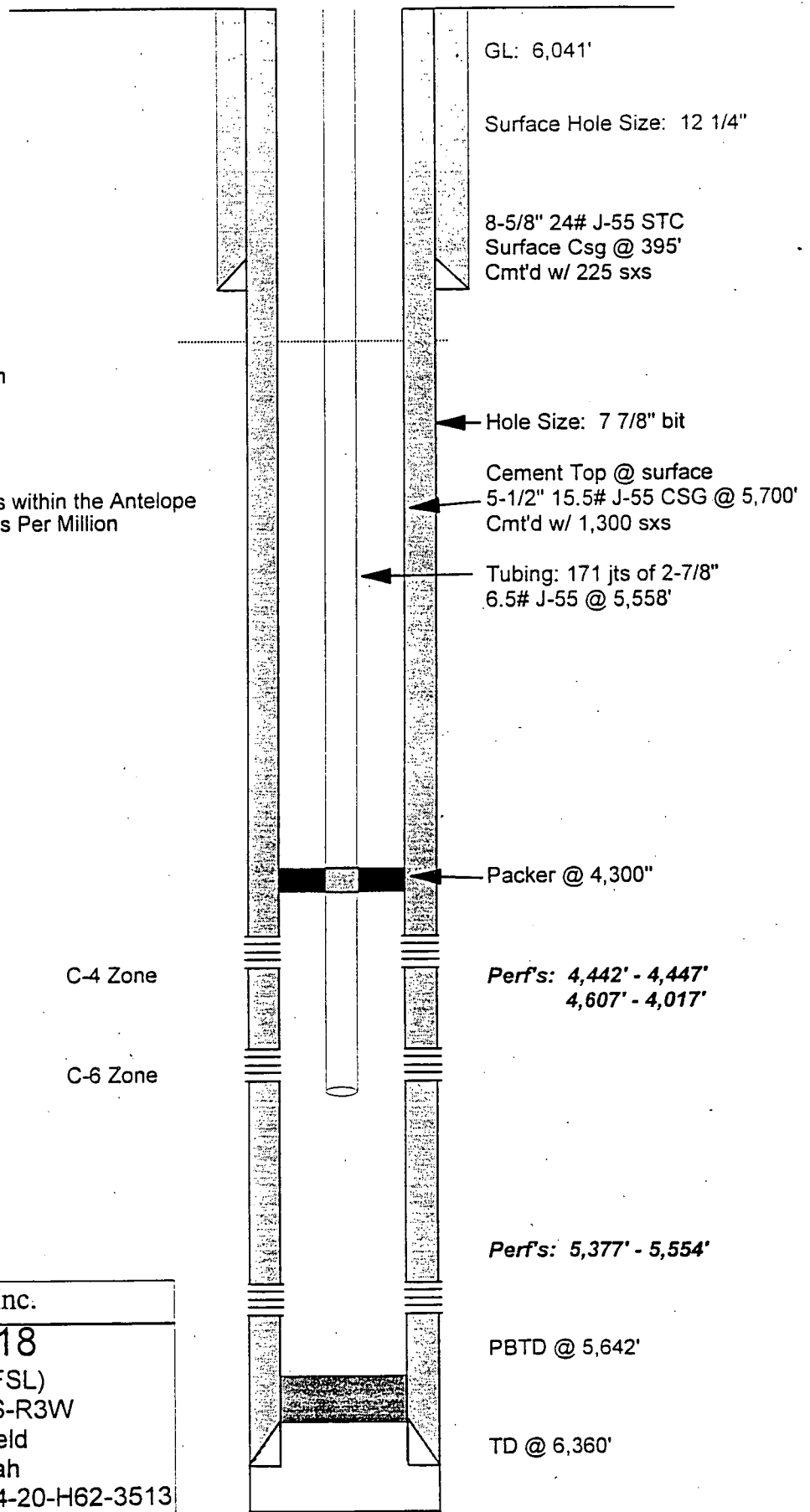
Water Samples and Locations

No USDW found in Uinta Formation

Top Green River Formation @ 1,502'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million
(See Exhibit 2 this section)



(Not to Scale)

Inland Resources Inc.
Ute Tribal 5-18
(667' FEL & 2,151' FSL)
NE SE Section 18-5TS-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31180; Lease #14-20-H62-3513

APPENDIX B

REPORTING FORMS

1. EPA Form 7520- 7: APPLICATION TO TRANSFER PERMIT
2. EPA Form 7520-10: COMPLETION REPORT FOR BRINE DISPOSAL WELL
3. EPA Form 7520-11: ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT
4. EPA Form 7520-12: WELL REWORK RECORD
5. EPA Form 7520-13: PLUGGING RECORD
6. EPA Form R8: MECHANICAL INTEGRITY PRESSURE TEST

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460Form Approved
OMB No. 2040-0042
Approval expires 9-30-96**COMPLETION REPORT FOR BRINE DISPOSAL,
HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL**

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

N									
S									

W E

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

¼ OF

¼ OF

¼ SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY

☐ Brine Disposal☐ Enhanced Recovery☐ Hydrocarbon Storage

TYPE OF PERMIT

☐ Individual☐ Area

Number of Wells ____

Estimated Fracture Pressure
of Injection Zone

Anticipated Daily Injection Volume (Bbls)

Injection Interval

Average

Maximum

Feet

to Feet

Anticipated Daily Injection Pressure (PSI)

Depth to Bottom of Lowermost Freshwater Formation
(Feet)

Average

Maximum

Type of Injection Fluid (Check the appropriate block(s))

☐ Salt Water☐ Brackish Water☐ Fresh Water☐ Liquid Hydrocarbon☐ Other

Lease Name

Well Number

Name of Injection Zone

Date Drilling Began

Date Well Completed

Permeability of Injection Zone

Date Drilling Completed

Porosity of Injection Zone

CASING AND TUBING

CEMENT

HOLE

OD Size

Wt/Ft — Grade — New or Used

Depth

Sacks

Class

Depth

Bit Diameter

INJECTION ZONE STIMULATION

WIRE LINE LOGS, LIST EACH TYPE

Interval Treated

Materials and Amount Used

Log Types

Logged Intervals

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

DATE SIGNED



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

[illegible]


 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 WASHINGTON, DC 20460

WELL REWORK RECORD

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CONTRACTOR

 LOCATE WELL AND OUTLINE UNIT ON
 SECTION PLAT — 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

¼ OF

¼ OF

¼ SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY

- ☐
- Brine Disposal
-
- ☐
- Enhanced Recovery
-
- ☐
- Hydrocarbon Storage

Lease Name

Total Depth Before Rework

Total Depth After Rework

Date Rework Commenced

Date Rework Completed

TYPE OF PERMIT

- ☐
- Individual
-
- ☐
- Area
-
- Number of Wells ____

Well Number

WELL CASING RECORD — BEFORE REWORK

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

WELL CASING RECORD — AFTER REWORK (Indicate Additions and Changes Only)

Casing		Cement		Perforations		Acid or Fracture Treatment Record
Size	Depth	Sacks	Type	From	To	

 DESCRIBE REWORK OPERATIONS IN DETAIL
 USE ADDITIONAL SHEETS IF NECESSARY

WIRE LINE LOGS, LIST EACH TYPE

Log Types

Logged Intervals

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

PLUGGING RECORD

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CEMENTING COMPANY

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

N									
S									

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

TYPE OF PERMIT

- ☐ Individual
☐ Area

Number of Wells

Describe in detail the manner in which the fluid was placed and the method used in introducing it into the hole

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT(LB./FT.)	PUT IN WELL (FT.)	LEFT IN WELL (FT.)	HOLE SIZE

WELL ACTIVITY

METHOD OF EMPLACEMENT OF
CEMENT PLUGS

- ☐ Brine Disposal
☐ Enhanced Recovery
☐ Hydrocarbon Storage

- ☐ The Balance Method
☐ The Dump Bailer Method
☐ The Two-Plug Method

Lease Name

Well Number

CEMENTING TO PLUG AND ABANDON DATA:

PLUG #1

PLUG #2

PLUG #3

PLUG #4

PLUG #5

PLUG #6

PLUG #7

Cementing Date

Size of Hole or Pipe in which Plug Placed (inches)

Depth to Bottom of Tubing or Drill Pipe (ft.)

Sacks of Cement Used (each plug)

Slurry Volume Pumped (cu. ft.)

Calculated Top of Plug (ft.)

Measured Top of Plug (if tagged ft.)

Slurry Wt. (Lb./Gal.)

Type Cement

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS

From

To

From

To

Signature of Cementer or Authorized Representative

Signature of EPA Representative

CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (Ref. 40 CFR 122.22).

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED

Mechanical Integrity Test Casing/Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date ____/____/9 Time _____ am/pm

Test conducted by: _____

Others present: _____

Well name _____	EPA Number _____
Field name _____	
Location _____ qtr qtr; _____ Section; _____ Township; _____ Range	
Owner/Operator _____	

Time	Test #1	Test #2	Test #3
0 min	_____ psig	_____ psig	_____ psig
5	_____	_____	_____
10	_____	_____	_____
15	_____	_____	_____
20	_____	_____	_____
25	_____	_____	_____
30 min	_____	_____	_____
35	_____	_____	_____
40	_____	_____	_____
45	_____	_____	_____
50	_____	_____	_____
55	_____	_____	_____
60 min	_____	_____	_____

Tubing press _____ psig _____ psig _____ psig

Result (circle) Pass Fail Pass Fail Pass Fail

Signature of Witness: _____

APPENDIX C (PLUGGING & ABANDONMENT PLANS)

Ute Tribal #1-8
Ute Tribal #5-8
Ute Tribal #4-18
Ute Tribal #5-18

Petroglyph Operating Company

Ute Tribal #1-8
T5S, R3W, Section 8

Plugging and Abandonment Plan

Primary Plan

1. POOH w/ tubulars.
2. RIH Set CIBP @ 3850'.
3. Set 200' cement plug (30 sxs class G cement) above CIBP.
4. Set 200' cement plug (30 sxs class G cement) @ 2400'.
5. Set 100' cement plug (15 sxs class G cement) across base of surface (471'-371').
6. Set 50' cement plug (8 sxs class G cement) from 50' to surface.
7. Pump 75 sxs down annulus or until full returns
8. Set P&A marker.

**Ute Tribal #1-8
Wellbore Diagram
Plugged**

Water Samples and Locations

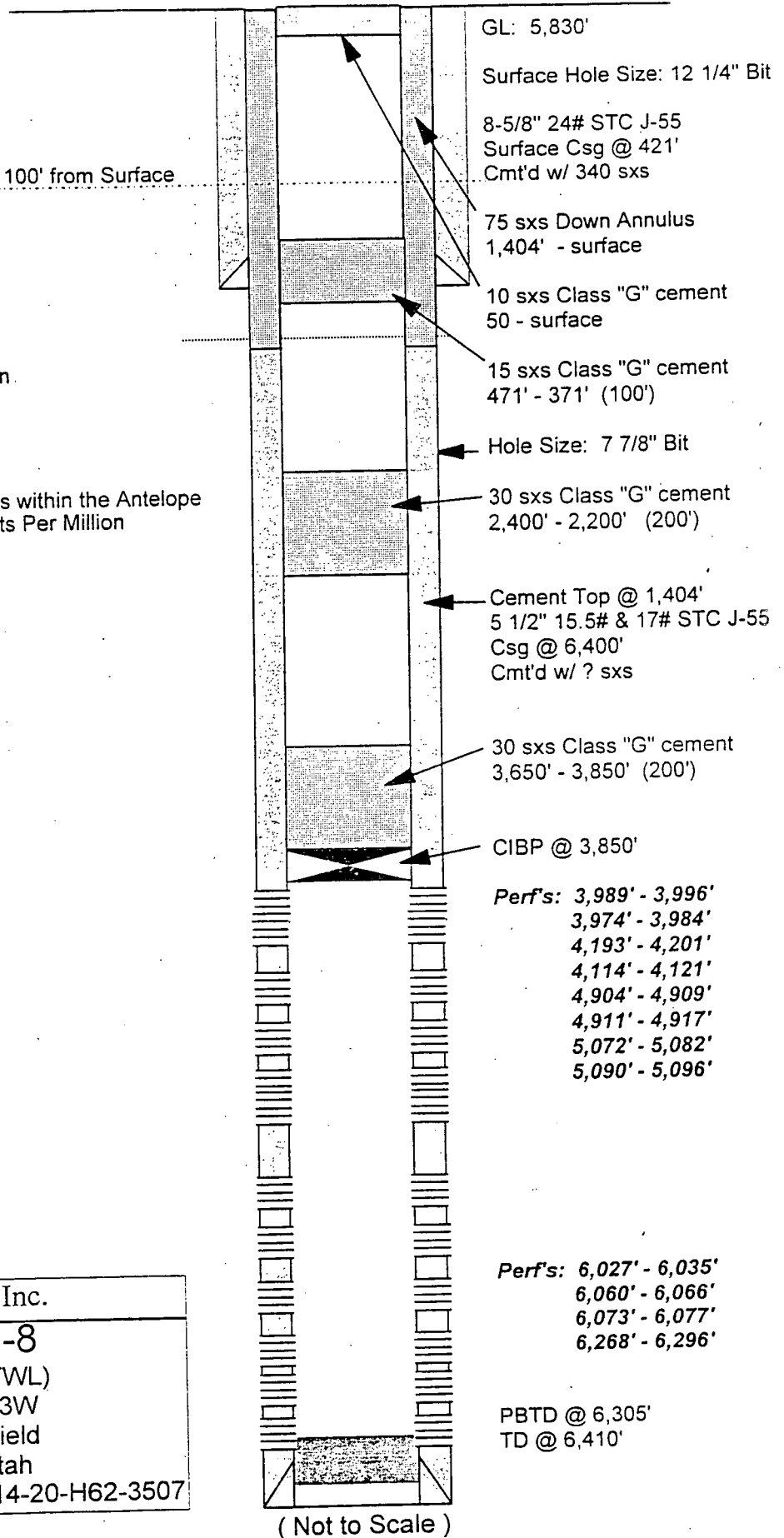
No USDW found in Uinta Formation

Estimated Base USDW 100' from Surface
See Map Section E.

Top of Green River Formation at 1,270'

No USDW found in Green River Formation.

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million



Inland Resources Inc.

Ute Tribal 1-8

(754' FNL & 888' FWL)

NW NW 8-T5S-R3W

Antelope Creek Field

Duchesne Co, Utah

API #43-013-30759; Lease #14-20-H62-3507

Petroglyph Operating Company

Ute Tribal #5-8
T5S, R3W, Section 8

Plugging and Abandonment Plan

Primary Plan

1. POOH w/ tubulars.
2. RIH Set CIBP @ 4900'.
3. Set 200' cement plug (30 sxs class G cement) above CIBP.
4. Set 200' cement plug (30 sxs class G cement) @ 2400'.
5. Set 100' cement plug (15 sxs class G cement) across base of surface (442'-342').
6. Set 50' cement plug (8 sxs class G cement) from 50' to surface.
7. Set P&A marker.

**Ute Tribal #5-8
Wellbore Diagram
Plugged**

Water Samples and Locations

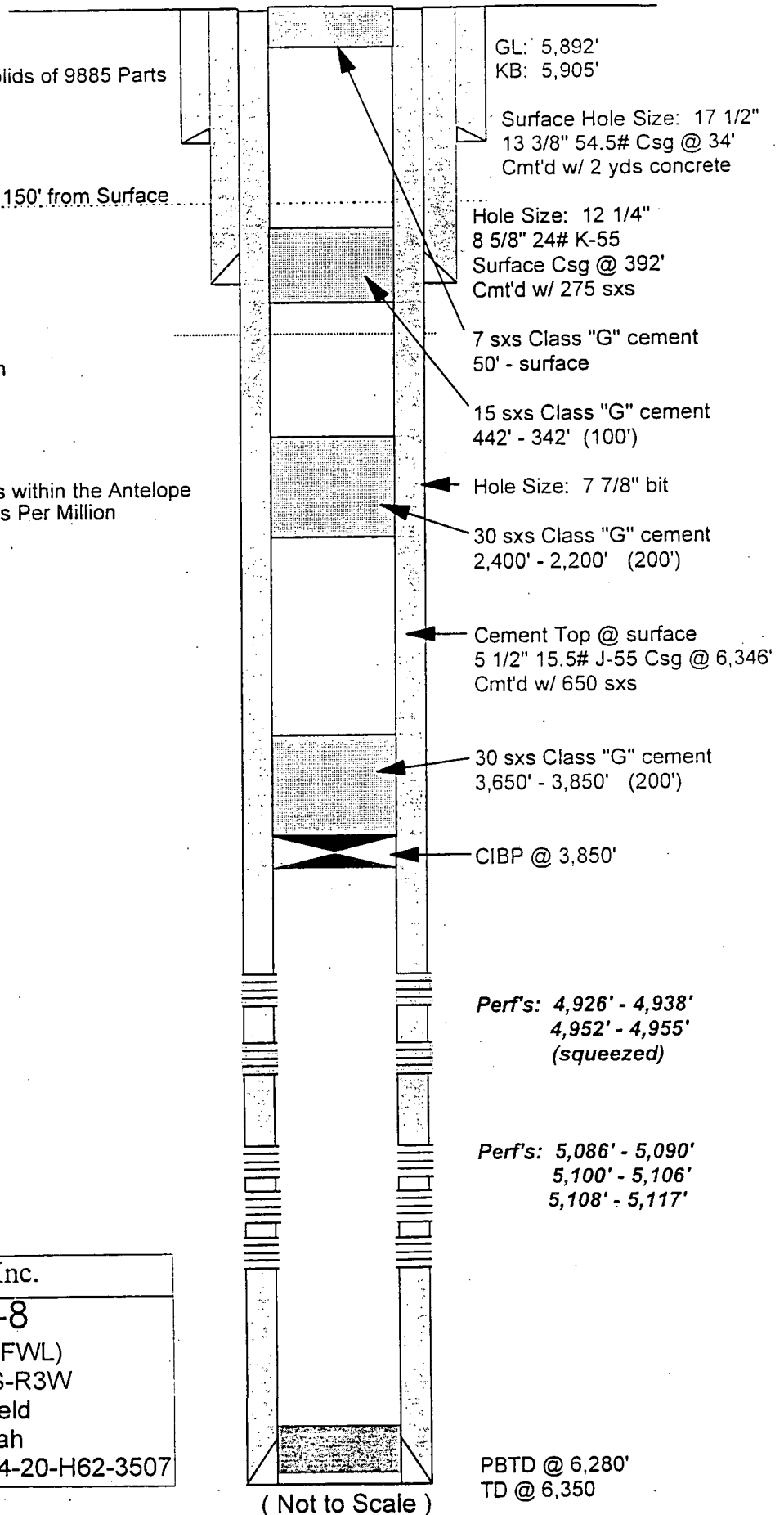
USDW found in Uinta Formation
Water found at 200' with total dissolved solids of 9885 Parts
Per Million

Estimated Base USDW 150' from Surface
See Map Section E.

Top of Green River Formation at 1,360'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million



Inland Resources Inc.
Ute Tribal 5-8
(1,550' FNL & 1,550' FWL)
SE NW Section 8-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31307; Lease #14-20-H62-3507

Petroglyph Operating Company

Ute Tribal #4-18
T5S, R3W, Section 18

Plugging and Abandonment Plan

Primary Plan

1. POOH w/ tubulars.
2. RIH Set CIBP @ 4050'.
3. Set 200' cement plug (30 sxs class G cement) above CIBP.
4. Set 200' cement plug (30 sxs class G cement) @ 2400'.
5. Set 100' cement plug (15 sxs class G cement) across base of surface (450'-350').
6. Set 50' cement plug (8 sxs class G cement) from 50' to surface.
7. Set P&A marker.

**Ute Tribal #4-18
Wellbore Diagram
Plugged**

Water Samples and Locations

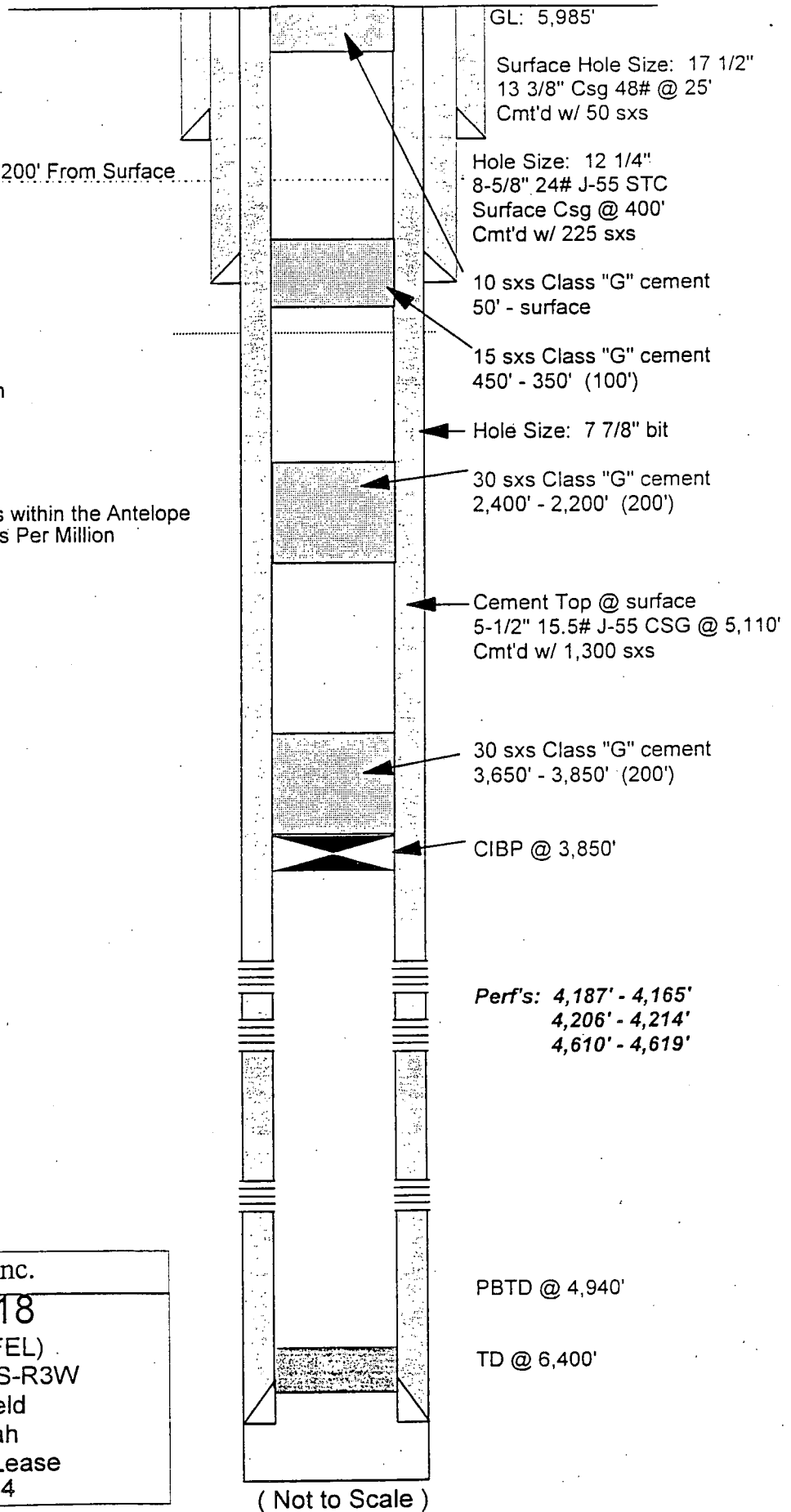
No USDW found in Uinta Formation

Estimated Base USDW 200' From Surface
See Map Section E.

Top of Green River Formation at 1,510'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million
(See Exhibit 2 this section)



Inland Resources Inc.
Ute Tribal 4-18
(812' FNL & 1,768' FEL)
NW NW Section 18-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31091; Lease
#14-20-H62-35134

Petroglyph Operating Company

Ute Tribal #5-18
T5S, R3W, Section 18

Plugging and Abandonment Plan

Primary Plan

1. POOH w/ tubulars.
2. RIH Set CIBP @ 4350'.
3. Set 200' cement plug (30 sxs class G cement) above CIBP.
4. Set 200' cement plug (30 sxs class G cement) @ 2400'.
5. Set 100' cement plug (15 sxs class G cement) across base of surface (445'-355').
6. Set 50' cement plug (8 sxs class G cement) from 50' to surface.
7. Set P&A marker.

Ute Tribal #5-18
Wellbore Diagram
Plugged

Water Samples and Locations

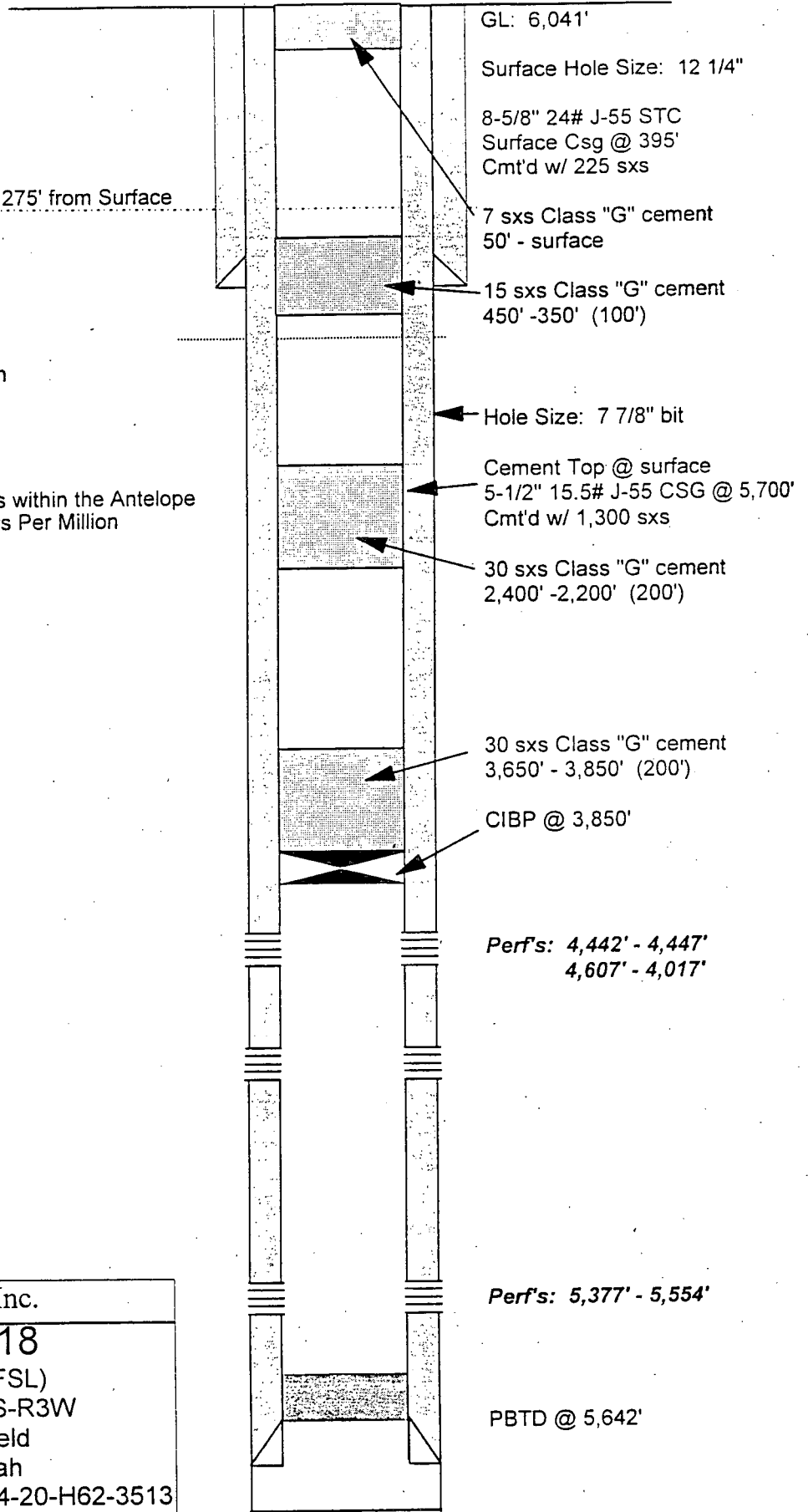
No USDW found in Uinta Formation

Estimated Base USDW 275' from Surface
See Map Section E.

Top Green River Formation @ 1,502'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million
(See Exhibit 2 this section)



(Not to Scale)

Inland Resources Inc.

Ute Tribal 5-18

(667' FEL & 2,151' FSL)

NE SE Section 18-5TS-R3W

Antelope Creek Field

Duchesne Co, Utah

API #43-013-31180; Lease #14-20-H62-3513

FINAL STATEMENT OF BASIS

PETROGLYPH OPERATING COMPANY, INC.

ANTELOPE CREEK WATERFLOOD

DUCHESNE COUNTY, UTAH

EPA AREA PERMIT NO. UT2736-00000

CONTACT:

John Carson
U. S. Environmental Protection Agency
UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500
Denver, Colorado 80202-2466
Telephone: (303) 293-1435

DESCRIPTION OF FACILITY AND BACKGROUND INFORMATION:

On March 1, 1994, Petroglyph Operating Company, Inc., made application for an area underground injection control (UIC) permit for the injection of water supplied by shallow water supply wells into multiple sands within the Green River Formation. This permit application is for the conversion of four (4) existing oil/gas wells to enhanced oil recovery wells so that Petroglyph may economically produce oil from the Antelope Creek Field. The total dissolved solids (TDS) content of the injection water from a current water supply well is 9,885 milligrams per liter (mg/l); additional water supply wells will be drilled as needed. Water analyses of produced water from twenty-one wells within the proposed waterflood area indicate the multiple sands of the Green River Formation to have TDS contents ranging from 10,106 to 25,708 mg/l, with an average TDS of 16,722 mg/l.

THIS AREA PERMIT ALSO PROVIDES FOR THE CONVERSION OF
ADDITIONAL HYDROCARBON PRODUCING WELLS AND THE CONSTRUCTION OF
NEW ENHANCED RECOVERY INJECTION WELLS.

The area covered by the application is the Antelope Creek Field with the boundaries defined as follows:

Township 5 South, Range 3 West, Duchesne County, Utah

Sections 2, 3, 4, 5, 6 (SE/4 of SE/4), 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, and 33.

FINAL STATEMENT

PETROGLYPH OPERATING CO

ANTELOPE CREEK WA

DUCHESNE COUNTY

EPA AREA PERMIT NO.

draw under

UT 20736 - 00000

Statement of Basis

67 Final Area Permit

Issued 7/12/1994

74 Final Area Permit

Effective 7/12/1994

CONTACT:

John Carson
U. S. Environmental Pr
UIC Implementation Sec
999 18th Street, Suite 500
Denver, Colorado 80202-2466
Telephone: (303) 293-1435

DESCRIPTION OF FACILITY AND BACKGROUND INFORMATION:

On March 1, 1994, Petroglyph Operating Company, Inc., made application for an area underground injection control (UIC) permit for the injection of water supplied by shallow water supply wells into multiple sands within the Green River Formation. This permit application is for the conversion of four (4) existing oil/gas wells to enhanced oil recovery wells so that Petroglyph may economically produce oil from the Antelope Creek Field. The total dissolved solids (TDS) content of the injection water from a current water supply well is 9,885 milligrams per liter (mg/l); additional water supply wells will be drilled as needed. Water analyses of produced water from twenty-one wells within the proposed waterflood area indicate the multiple sands of the Green River Formation to have TDS contents ranging from 10,106 to 25,708 mg/l, with an average TDS of 16,722 mg/l.

THIS AREA PERMIT ALSO PROVIDES FOR THE CONVERSION OF
ADDITIONAL HYDROCARBON PRODUCING WELLS AND THE CONSTRUCTION OF
NEW ENHANCED RECOVERY INJECTION WELLS.

The area covered by the application is the Antelope Creek Field with the boundaries defined as follows:

Township 5 South, Range 3 West, Duchesne County, Utah

Sections 2, 3, 4, 5, 6 (SE/4 of SE/4), 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, and 33.

The Area of Review (AOR) is defined as that area subtended by a line drawn one-quarter (1/4) mile beyond and around the boundaries described above. The Sections in T5S-R3W listed above are within the boundaries of the Uintah-Ouray Indian Reservation.

The first wells to be converted from production wells to enhanced recovery injection wells in the Green River Formation are listed below:

<u>NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal #1-8	NW NW Section 8	UT2736-04201
Ute Tribal #5-8	SE NW Section 8	UT2736-04203
Ute Tribal #4-18	NW NE Section 18	UT2736-04202
Ute Tribal #5-18	NE SE Section 18	UT2736-04204

Petroglyph Operating has submitted all required information and data necessary for permit issuance in accordance with 40 CFR Parts 144, 146 and 147, and a draft permit has been prepared. The permit will be issued for the operating life of the waterflood, unless the permit is terminated for reasonable cause (40 CFR §144.39, §144.40 and §144.41). However, the permit will be reviewed every five years.

This Statement of Basis gives the derivation of the site-specific permit conditions and reasons for them. The referenced sections and conditions correspond to the sections and conditions in Area Permit UT2736-00000. The general permit conditions for which the content is mandatory and not subject to site-specific differences (based on 40 CFR Parts 144, 146 and 147), are not included in the discussion.

PART II, Section A WELL CONSTRUCTION REQUIREMENTS

Casing and Cementing

(Condition 1)

Casing and cementing details for the four initial wells to be converted to injection for the Antelope Creek Waterflood Project were submitted with the permit application. Well construction is as follows:

Ute Tribal #1-8

- (1) Surface casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 421 feet Kelly Bushing (KB). The cement used to secure the casing was circulated to the surface, isolating the casing from the wellbore.

- (2) Long string casing (5-1/2 inch) is set in a 7-7/8 inch diameter hole to a depth of 6,400 feet KB. The cement used to secure this casing extends from the casing shoe, up to a depth of 1,404 feet.

Ute Tribal #5-8

- (1) Surface casing (13-3/8 inch) is set in a 17-1/2 inch diameter hole to a depth of 34 feet KB. The cement used to secure the casing was circulated to surface, isolating the casing from the wellbore.
- (2) Intermediate casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 392 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.
- (3) Long string casing (5-1/2 inch) is set in a 7-7/8 inch diameter hole to a depth of 6,346 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.

Ute Tribal #4-18

- (1) Surface casing (13-3/8 inch) is set in a 17-1/2 inch diameter hole to a depth of 25 feet KB. The cement used to secure the casing was circulated to surface, isolating the casing from the wellbore.
- (2) Intermediate casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 400 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.
- (3) Long string casing (5-1/2 inch) is set in a 7-7/8 inch diameter hole to a depth of 5,110 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.

Ute Tribal #5-18

- (1) Surface casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 395 feet KB. The cement used to secure the casing was circulated to the surface, isolating the casing from the wellbore.
- (2) Long string casing (5-1/2 inch) is set in a 7-7/8 inch diameter hole to a depth of 5,700 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.

The Uinta Formation extends from the surface to an average depth of 1,410 feet. The base of the lowermost possible underground source of drinking water (USDW) containing total dissolved solids of less than 10,000 mg/l occurs in the Uinta Formation and is near ground surface in the northern part of the waterflood area, but descends to a depth of approximately 1,200 feet in the southern part of the area. The four wells initially to be converted are cemented to sufficient height behind surface and long string production casings to preclude any migration of injected fluids up hole into any USDW within the Uinta Formation. The source for this USDW information is formation water analyses submitted by the operator for twenty-two wells within the AOR, and information from Technical Publication No. 92 (1987), prepared jointly by the USGS and the Utah Division of Oil, Gas, and Mining.

The injection intervals in the initial four wells are between the depths of 3,974 and 5,554 feet, some 2,500 feet below the top of the Green River Formation which is at an average depth of 1,410 feet. The injection zones are composed of lenticular calcareous sandstones interbedded with low permeable carbonates and calcareous shales. The lenticular sandstones vary in thickness from 1 to 30 feet. The overall confining strata above the injection zones consist of impermeable Green River calcareous shales and continuous beds of microcrystalline dolomite. All injection zones in these four wells as well as in future conversion wells will be confined within a 2,100 foot section between the Green River "A" Lime marker bed and the top of the Basal Carbonate in the lower part of the formation.

Requirements for Additional Wells

(Condition 2)

The permittee may convert and/or construct other wells to enhanced recovery injection wells within the Area Permit boundary, provided that additional wells meet all conditions as set forth in this permit. Additional wells must have surface casing cemented to the surface; and cement behind the long string casing, below the injection zone and up to 300 feet above the uppermost perforations. The permittee shall also conduct appropriate downhole logging, and other tests, during the conversion and/or construction of any new enhanced recovery injection wells. For newly constructed wells, the permittee shall run a cement bond log (CBL)-variable density log (VDL)-gamma ray log (GR) from total depth (TD) to the base of the surface casing shoe. Additional logs to be run are a Dual Induction log, Density-Neutron and/or Sonic log. Along with this suite of logs, or any other pertinent logs, the permittee shall include appropriate narrative interpretations by a log analyst.

The permittee will determine the injection zone fluid pore pressure (static bottom-hole pressure) and will obtain an accurate injection zone fracture pressure, breakdown pressure,

and instantaneous shut-in pressure (ISIP) through injectivity testing of the injection zones. This testing may be performed prior to full operation, or within three months after injection operations are initiated. Also, an estimate of injection zone permeability and water quality of the formation fluid will be determined.

Any proposal for additional well conversions or new well construction must first be approved by the Director, and no action may be taken by the permittee until written authorization is received from the Director.

Tubing and Packer Specifications

(Condition 3)

The injection wells will be equipped with 2-7/8 inch tubing and packers set above the injection zones. The permittee is required to set packers at a distance of no more than 100 feet above the uppermost perforations in each well. This information (Appendix A) submitted by the applicant is incorporated into the permit and shall be binding on the permittee.

Monitoring Devices

(Condition 4)

For the purpose of taking tubing and tubing/long string casing annulus pressure measurements, the EPA is requiring that the permittee install 1/2-inch fittings (for stab type pressure receptacle) with cut-off valves at the wellhead on the tubing, and on the tubing/casing annulus.

EPA is further requiring the permittee to install a sampling tap on the line to each injection well and a flow meter that will be used to measure rate and cumulative volume of injected fluid.

Formation Testing and Logging

(Condition 6)

- a. Testing. Upon conversion and/or construction of each well, the permittee is required to determine the injection zone fluid pore pressure (static bottom hole pressure) prior to commencement of disposal operations.
- b. Step-Rate Test. A step-rate injectivity test shall be performed on at least one (1) of the initial proposed injection wells to determine the formation parting pressure and the results submitted to the EPA. This testing may be performed prior to full operation, or within three (3) months after injection operations are initiated.
- c. Logging. The permittee shall conduct appropriate down-hole logging prior to the setting of production casing on all newly constructed wells. The following suite of logs are required; Dual Induction (DIL) and

Compensated Density/Neutron (CNL-FDC). A Cement Bond/Gamma Ray log shall be run after casing is set. All logging results shall be accompanied by a brief written narrative (prepared by a knowledgeable log analyst) identifying the USDWs, formation tops, confining layers, injection zones and top of cement.

PART II, Section B CORRECTIVE ACTION

The applicant submitted the required 1/4-mile area of review (AOR) information with the permit application. Within the AOR there are forty-nine (49) production wells, five (5) plugged and abandoned wells, and one (1) permitted injection well (EPA Permit UT2497-03100). The long string casing/wellbore annulus in 23 of the production wells, and in the permitted injection well, is cemented from the casing shoe to ground surface; the remaining 26 production wells are cemented a minimum of 500 feet above the top of the Green River perforated intervals. The casing and cement in all of the production wells and the currently permitted well will prevent the migration of injected fluids up hole into any of the shallower Uinta Formation USDWs. The five plugged and abandoned wells within the AOR were plugged in such a manner that will also prevent any endangerment to USDWs. Therefore, the permittee is not required to take any corrective action prior to the issuance of this permit.

PART II, Section C WELL OPERATION

Prior to Commencing Injection (Initial Wells) Condition 1)

Injection operations shall not commence until the permittee has complied with the following:

- a. Conversion is complete and permittee has submitted a Well Rework Record (EPA Form 7520-12).
- b. Determined the injection zone fluid pore pressure.
- c. The well successfully passes a mechanical integrity pressure test (MIT) according to the guidelines discussed in the permit, and is witnessed by a representative of the EPA.

Prior to Commencing Injection (Additional Wells) (Condition 2)

Enhanced recovery injection through any additional wells (converted and/or newly constructed) may not commence until the permittee has complied with both (a) and (b) below:

- a. All required formation testing and logging has been performed in accordance with Part II, A. 6., conversion

and/or construction is complete and the permittee has submitted the appropriate forms. These forms are EPA Form 7520-12 for conversion wells and EPA Form 7520-10 for newly constructed wells.

- b. The permittee demonstrates that a given well(s) has mechanical integrity in accordance with 40 CFR §146.8 and Part II, C. 3.(a), and the permittee has received notice from the Director that such a demonstration is satisfactory. The permittee shall notify EPA two weeks prior to conducting this test so that an authorized representative may be present to witness the test.

Mechanical Integrity (Subsequent to Initial Demonstration)

(Condition 3)

A tubing/casing annulus pressure test must be repeated at least once every five (5) years to demonstrate continued tubing, packer, and casing integrity.

Injection Interval

(Condition 4)

Fluid injection shall be limited to the gross interval within the Green River Formation between the approximate depths of 3,750 feet to 5,850 feet.

Injection Pressure Limitation

(Condition 5)

The permittee shall limit the maximum surface injection pressure to 1900 psig. Permit provisions have been made that allow the Director to **increase or decrease** the injection pressure, based on the results of a step-rate test (SRT) showing that the new requested pressure will not exceed the formation breakdown pressure. The Director will specify in writing, to the permittee, any increase or decrease to the injection pressure based upon the test results and/or other parameters reflecting actual injection operations.

The permittee submitted fracture treatment data from the four initial wells to be converted. An average fracture gradient of 0.97 psig/ft for Green River sands was obtained from these treatments; however, a more conservative gradient of 0.88 psig/ft will be used to determine a maximum injection pressure. This latter gradient was obtained from a step-rate test of the Green River in the Ute Tribal #2-4 permitted well. The well depth (d) used in the calculation is the average depth of the shallowest injection intervals in the initial four wells. The Maximum surface injection pressure (Pm) was calculated as follows:

$$P_m = [0.88 - 0.433 (S_g)] d$$

Where: Pm = Maximum surface injection pressure
at wellhead
d = 4310 feet (average depth, top
perforations in four initial wells)
0.433 = hydrostatic gradient of water
Sg = Specific gravity of injected fluid

$$P_m = [0.88 - 0.433(1.00)] 4310$$

$$P_m = 1926 \text{ psig}$$

Injection Volume Limitation

(Condition 6)

The daily injection rate will not be limited, but in no case shall the injection pressure exceed that listed in Part II, Section C, (Condition 5), above. There shall be no limit on the cumulative number of barrels of water that may be injected into the Green River Formation.

Injection Fluid Limitation

(Condition 7)

Injection fluids are limited to those which are identified in 40 CFR §144.6(b)(2), as fluids used for enhanced recovery of oil and/or natural gas. The permittee shall provide a listing of the sources of injected fluids on an annual basis as required by the permit.

PART II, Section D MONITORING, RECORD KEEPING, AND REPORTING OF RESULTS

Injection Well Monitoring Program

(Condition 1)

The permittee is required to monitor water quality of the injected fluids on an annual basis. A water sample of injected fluids shall be analyzed for total dissolved solids, pH, specific conductivity, and specific gravity. Any time there is a change in the source of injection fluid, a new water quality analysis is also required. This analysis is required to be reported to EPA annually. In addition, weekly observations of flow rate, cumulative volume, injection pressure, and annulus pressure will be made. At least one observation each for flow rate, injection pressure, annulus pressure, and cumulative volume will be recorded on a monthly basis. This record is required to be reported to EPA annually.

The permittee shall maintain copies (or originals) of all pertinent records at the office of Petroglyph Operating Company, Inc., 6209 North Highway 61, Hutchinson, Kansas 67502.

PART II, Section E PLUGGING AND ABANDONMENT

Plugging and Abandonment Plan

(Condition 2)

The plugging and abandonment plans submitted by the applicant, are incorporated into the permit, (Appendix C of the Permit) and shall be binding on the permittee. These plans have been reviewed and are consistent with UIC requirements.

Plugging of Additional Wells

(Condition 5)

The permittee may plug any additional injection wells within the permitted area, converted or constructed under Part II Section A, provided that the respective plugging and abandonment plans meet all conditions as set forth in the permit. Plugging and abandonment shall not occur until the EPA has reviewed and approved the plan(s).

PART II, Section F FINANCIAL RESPONSIBILITY

Demonstration of Financial Responsibility

(Condition 1)

Petroglyph Operating Company, Inc. has chosen to demonstrate financial responsibility by a Surety Bond and Standby Trust Agreement, both of which have been evaluated and approved.

FINAL STATEMENT OF BASIS ADDENDA

EPA Area Permit No. UT2736-00000

Petroglyph Operating Company, Inc.

Antelope Creek Waterflood

Antelope Creek Field
Duchesne County, Utah

Pursuant to Part III, Section B. 1. of the above-referenced Underground Injection Control (UIC) permit, Addenda to the Statement of Basis relative to the subject Area Permit Major Modifications are hereby established. The purpose of these addenda to the Statement of Basis is to address the changes incorporated in the **expanded Antelope Creek Waterflood**.

It is understood that the additional to-be-converted injection wells addressed in these Major Permit Modifications are subject to all requirements for newly constructed injection wells in the original Area Permit. Further, the **specific details addressed in the "original" Statement Of Basis** are likewise applicable to the additional wells being permitted under these Major Modifications.

The discussion of the Major Permit Modifications of the original versions of Title Change and Expanded Unit Area of PART I, of PART II, Sections A.1.(a); B; and C.1; and of corrections of nomenclature in PART II. Section D. and PART III. Sections A, and B are as follows:

MODIFICATION #1 [Title of PART I]: AUTHORIZATION TO CONVERT/OR CONSTRUCT AND OPERATE (not Inject)

Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received **separate written authorization from the Director**.

PART I. MODIFICATION #2 [Expanded Area]:

The expanded **Antelope Creek Waterflood** area (as modified) includes the conversion of initially **four (4)** existing oil production wells to Class II enhanced oil recovery injection wells located within the proposed Antelope Creek Waterflood, Duchesne County, Utah. Each of these proposed wells are located within the **expanded permitted area** which is defined as follows:

Township 4 South, Range 3 West, Duchesne County, Utah

Section 20: NENE, SENE, NESE,
 Section 21: All, Section 22: All, Section 25: E/2, NW,
 S/2SW, NW/SW, Section 26: All, Section 27: All,
 Section 28: All, Section 29: SENE, E/2SE, SWSE, SESW,
 Section 31: W/2, NWNE, S/2SE, NESE, Section 32: E/2, SW,
 S/2NW, NENW, Section 33: All, Section 34: All,
 Section 35: All, Section 36: All

Township 4 South, Range 4 West, Duchesne County, Utah

Section 25: S/2, Section 36: All

Township 5 South, Range 4 West, Duchesne County, Utah

Section 1: All, Section 12: All, Section 36: All.

MODIFICATION #3 [PART I] - (Original Permit version):

Injection will be for the purpose of enhanced recovery of oil so that Petroglyph Operating Company, Inc. (Petroglyph) may economically produce oil from the Antelope Creek Field, in accordance with conditions set forth herein, and initially utilizing the following currently existing production wells:

<u>NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal #33-14D3	SE/SW Section 33	UT2736-04420
Ute Tribal #33-10D3	NW/SE Section 33	UT2736-04421
Ute Tribal #33-08D3	SE/NE Section 33	UT2736-04422
Ute Tribal #33-16D3	SE/SE Section 33	UT2736-04423

are located within the total, newly defined permitted area:

Township 4 South, Range 3 West, Duchesne County, Utah

Section 20: NENE, SENE, NESE,
 Section 21: All, Section 22: All, Section 25: E/2, NW,
 S/2SW, NWSW, Section 26: All, Section 27: All,
 Section 28: All, Section 29: SENE, E/2SE, SWSE, SESW,
 Section 31: W/2, NWNE, S/2SE, NESE, Section 32: E/2, SW,
 S/2NW, NENW, Section 33: All, Section 34: All,
 Section 35: All, Section 36: All

Township 4 South, Range 4 West, Duchesne County, Utah

Section 25: S/2,

Township 5 South, Range 3 West, Duchesne County, Utah

Sections 2, 3, 4, 5, Section 6: SE/4SE/4, Sections: 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, and 33: All,

Township 5 South, Range 4 West, Duchesne County, Utah

Section 1: All, Section 12: All, Section 36: All.

MODIFICATION #4 [New Well Corrective Action Requirements]:

The additional thirty (30) wells; of which three (3) are T/A'd, nine (9) are P/A'd, fourteen (14) are producing oil wells, one (1) shut-in, one (1) water injection well, one (1) waiting on completion, and one (1) WDC well within the expanded Area Of Review (AOR) have been reviewed and were determined to have been satisfactorily constructed or plugged and abandoned to provide for protection of potential Underground Sources of Drinking Water (USDWs). Therefore, the operator is not required to take any corrective action on any of the additional thirty (30) wells within the expanded 1/4-mile area of review (AOR) covered by this Modified Area Permit.

MODIFICATION #5 [Prior to Commencing Injection (Initial Wells)]

MODIFICATIONS #6 & #7 [Correction of Nomenclature in the Permit Parts II. D. and III. A. & B.]:

There were several instances in the "original Area Permit in which injection activity was referred to and discussed as "underground disposal" and/or "disposal activity". These modifications are being made to correctly identify the injection activity as being for the purpose of enhanced recovery of oil.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

JUN 2 1994

Ref: 8WM-DW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

R. A. Christensen
President
Petroglyph Operating Company, Inc.
335 North Washington, Suite 140
P.O. Box 1807
Hutchinson, Kansas 67504-1807

Draft Area Permit

RE: UNDERGROUND INJECTION CONTROL (UIC)
Draft Area Permit for the
Antelope Creek Field Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Christensen:

Enclosed is a Draft Underground Injection Area Permit (UT2736-00000) which includes four (4) proposed enhanced recovery injection wells (Ute Tribal #1-8, #5-8, #4-18, and #5-18) for the Antelope Creek Field Waterflood. A Statement of Basis, which discusses development of the Draft Area Permit, and a Public Notice are also included.

A notice should appear soon in the VERNAL EXPRESS, the UINTAH BASIN STANDARD, and the Rocky Mountain Oil Journal notifying the public of their opportunity to comment. A notice of our intent to issue an Area Permit has also been sent to the surface landowners who may be affected by the proposed action. The public comment period on this action will run for thirty (30) days from the date of publication. You may call Ms. Daniela Thigpen at (303) 293-1421, to obtain the exact deadline for public comments.

EPA is accepting comments on the draft permit during the 30-day public comment period. The procedures for submission of comments as well as for EPA's consideration of such comments are set forth in 40 CFR Part 124, Subpart A. Should public comment warrant, EPA may, at its discretion, schedule a public hearing regarding the draft permit's requirements. Please be aware that a final permit decision will not be made until after the public comment period closes.

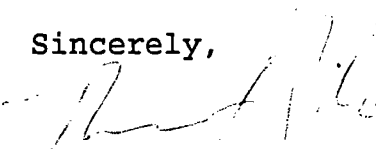


Printed on Recycled Paper

The enclosed permit is a "DRAFT" version of the proposed final permit. It is a "sample" of what the final permit will look like. Although the text on page four (4), paragraph two (2), of the "Draft" permit says you are authorized to convert four wells, this version of the permit is NOT official. It is being sent to you so that you may have a chance to comment.

If you have any questions on the draft permit, you may call John Carson at (303) 293-1435. Also, please direct all correspondence to the attention of John Carson at Mail Code 8WM-DW.

Sincerely,



Thomas J. Pike
Chief
UIC Implementation Section

Enclosures: Draft Area Permit
Draft Statement of Basis
Public Notice

cc: John E. Dyer w/enclosures
Inland Resources, Inc.

Luke Duncan w/enclosures
Northern Ute Tribe

Ferron Secakuku w/enclosures
Northern Ute Tribe

Norman Cambridge w/enclosures
Bureau of Indian Affairs

Jerry Kenczka w/enclosures
Bureau of Land Management

Gilbert Hunt w/enclosures
State of Utah Natural Resources
Division of Oil, Gas and Mining

JUN 2 1994

Ref: 8WM-DW

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R. A. Christensen
President
Petroglyph Operating Company, Inc.
335 North Washington, Suite 140
P.O. Box 1807
Hutchinson, Kansas 67504-1807

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8WM-DW
for
5/2/94

CJL

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Thomas J. Pike
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UIC Implementation Section

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cc: John E. Dyer w/enclosures
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Norman Cambridge w/enclosures
Bureau of Indian Affairs

Jerry Kenczka w/enclosures
Bureau of Land Management

Gilbert Hunt w/enclosures
State of Utah Natural Resources
Division of Oil, Gas and Mining

FCD: April 29, 1994, car, jac, A:\PETROGP.DFT

Is your RETURN ADDRESS completed on the reverse side?

SENDER: jc 06/02/94 2040C

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: UT2736-00000

R. A. Christensen
President
Petroglyph Operating Company, Inc.
335 North Washington, Suite 140
P. O. BOX 1807
Hutchinson, Kansas 67504-1807

4a. Article Number

P 241 442 481

4b. Service Type

- ☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

JUN 6 1994

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

cjo

PS Form 3811, December 1991 U.S. GPO: 1993-352-714

DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.

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Receipt for Certified Mail

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R. A. Christensen
President
Petroglyph Operating Company, Inc.
335 North Washington, Suite 140
P. O. BOX 1807
Hutchinson, Kansas 67504-1807

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Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, and Addressee's Address

TOTAL Postage & Fees

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Postmark or Date
Draft Area Permit

Antelope Cr. Field Waterflood
EPA Area Permit #UT2736-00000
Duchesne County, Utah

PS Form 3800, June 1991

Date: 1/31/17

FINAL PERMIT -- ROUTING SLIP

TO	INITIALS	DATE
1. ORIGINATOR J. Carson 8WM-DW	JAC	7/8/94
2. MARGARET REDDY - PROOF READ 8WM-DW	GR	7/8/94
3. CHUCK TINSLEY - PERMIT REVIEW 8WM-DW		
4. * ORC 8RC		
5. TOM PIKE - SECTION CHIEF 8WM-DW	TP	7/8/94
6. MAX DODSON - DIV. DIRECTOR 8WM	me	7/12/94
7. ORIGINATOR - COPIES 8WM-DW	CEW	7/13/94
8. DANIELA THIGPEN - TRACKING 8WM-DW	TH	7/13/94
9. MARGARET REDDY - MAIL 8WM-DW		

WELL NAME: Area Permit - Antelope Creek Fld.
PERMIT NUMBER: UT 2736-00000
APPLICANT: Petroglyph Operating Company, Inc.

Contents of Final Permit Package

Left Side:

UIC Permit Action SOP
Compliance History
Final Permit Considerations
UIC Program Tracking
Operating Conditions Checklist
Prior to Injection Checklist
Cover Letter (Concurrence)
Cover Letter (Reading File)
~~Public Comment Letters~~

Right Side:

✓ Cover Letter (Sign)
✓ Final Statement of Basis
✓ Final Permit (Sign)
~~Aquifer Exemption (Sign)~~
~~Response to Comments~~

COMMENTS: * No change from Draft Final Area Permit

No Comments

Originator: J. Carson

Date: 5/2/94

DRAFT PERMIT -- ROUTING SLIP

TO			INITIALS	DATE
1.	ORIGINATOR	J. Carson 8WM-DW	Jac	5/2/94
2.	MARGARET REDDY - PROOF READ	8WM-DW	GR	05/02/94
3.	CHUCK TINSLEY - TECH REVIEW	8WM-DW	HT	5/13
4.	ORC	8RC	N/A	5/13
5.	TOM PIKE - SECTION CHIEF	8WM-DW	HT	5/13
6.	ORIGINATOR - COPIES	8WM-DW	JAL	5/15
7.	DANIELA THIGPEN - TRACKING	8WM-DW	DT	6/2/94
8.	MARGARET REDDY - MAIL	8WM-DW		

WELL NAME: Area Permit - Antelope Creek Fld.
 DRAFT PERMIT NUMBER: UT 2736-00000
 APPLICANT: Petroglyph Operating Company, Inc.

Contents of Draft Permit Package:

Left Side:

UIC Permit Action SOP
 Compliance History
 Draft Permit Considerations
 UIC Permit Tracking
 SPMS Tracking
 Cover Letter (Concurrence)
 Cover Letter (Reading File)

Right Side:

Cover Letter (Sign)
 Public Notice
 Draft Statement of Basis
 Draft Permit (Do Not Sign)
~~Draft Aquifer Exemption (Do Not Sign)~~

COMMENTS: Area Permit on Uintah-Ouap Res.

Originator: J. Carson



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

**999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466**

UNDERGROUND INJECTION CONTROL PROGRAM

Final Area Permit

Class II Enhanced Recovery Unit

EPA Area Permit No. UT2736-00000

Field Name: Antelope Creek

Unit Name: Antelope Creek Waterflood

County & State: Duchesne County, Utah

issued to:

Petroglyph Operating Company, Inc.

6209 North Highway 61

Hutchinson, Kansas 67502



Printed on Recycled Paper

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PART I. AUTHORIZATION TO CONVERT/OR CONSTRUCT AND INJECT

Pursuant to the Underground Injection Control Regulations of the U. S. Environmental Protection Agency (EPA) codified at Title 40 of the Code of Federal Regulations, Parts 124, 144, 146, and 147,

Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

is hereby authorized, under this area permit, to convert four (4) existing oil production wells to Class II enhanced recovery injection wells located within the Antelope Creek Field, Duchesne County, Utah. Each of these proposed wells are located within the permitted area which is defined as follows:

Township 5 South, Range 3 West, Duchesne County, Utah

Sections 2, 3, 4, 5, 6 (SE/4 of SE/4), 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, and 33.

The Area of Review (AOR) is defined as that area subtended by a line drawn one-quarter (1/4) mile beyond and around the boundaries described above. All of The Sections in T5S-R3W listed above are within the boundaries of the Uintah-Urley Indian Reservation.

Injection will be for the purpose of enhanced recovery of oil so that Petroglyph Operating Company, Inc. may economically produce oil from the Antelope Creek Field, in accordance with conditions set forth herein, and initially utilizing the following currently existing production wells located in T5S-R3W:

<u>WELL NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal #1-8	NW/4 of NW/4 Section 8.	UT2736-04201
Ute Tribal #5-8	SE/4 of NW/4 Section 8	UT2736-04203
Ute Tribal #4-18	NW/4 of NE/4 Section 18	UT2736-04202
Ute Tribal #5-18	NE/4 of SE/4 Section 18	UT2736-04204

Injection activities shall not commence until the operator has fulfilled all applicable conditions of this permit and has received written authorization from the Director. "Prior to Commencing Injection" requirements are set forth in Part II, Section C. 1. & 2. of this permit.

All conditions set forth herein refer to Title 40 Parts 124, 144, 146, and 147 of the Code of Federal Regulations (CFR) and are regulations that are in effect on the date that this permit becomes effective.

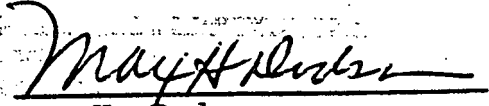
This permit consists of a total of 46 pages and includes all items listed in the Table of Contents. Further, it is based upon representations made by the permittee and on other information contained in the administrative record. It is the responsibility of the permittee to read and understand all provisions of this permit.

This area permit and the authorization to inject are issued for the operating lives of the wells, unless terminated (Part III, Section B); authorization to inject shall automatically expire due to prolonged postponement of conversion [Part II, Section A. 1. (b)]. The area permit will be reviewed by EPA at least every five (5) years to determine whether action under 40 CFR §144.36(a) is warranted.

The Northern Ute Indian Tribe of the Uintah-Ouray Reservation may apply for primary enforcement responsibility of the UIC program, thereby assuming primary responsibility for regulating this permittee. Notwithstanding approval of the Tribal UIC primacy application, EPA retains responsibility for directly administering and enforcing this federal permit, unless otherwise specifically addressed in the EPA/Tribe MOA (40 CFR §145.25). If EPA determines that the Tribe has issued an equivalent permit under an EPA approved UIC program, EPA and the permittee may agree to terminate this federal permit.

Issued this 12th day of July, 1994.

This permit shall become effective July 12, 1994.


* Max H. Dodson
Director
Water Management Division

NOTE: The person holding this title is referred to as the "Director" throughout this permit.

PART II. SPECIFIC PERMIT CONDITIONS

A. WELL CONVERSION/CONSTRUCTION REQUIREMENTS

1. Casing and Cementing.

(a) The proposed conversion details submitted with the application are hereby incorporated into this permit as Appendix A, which graphically displays the present casing and cementing details. These plans have been reviewed by the EPA and are consistent with underground injection control (UIC) requirements and shall be binding on the permittee.

(b) Postponement of conversion. If at least one of the wells under consideration is not converted to injection status within one (1) year from the effective date of this permit, the permit shall automatically expire. The permittee may request an extension for the conversion of the first well. This request shall be in writing to the Director, and shall state the reasons for the delay in conversion, and confirm the protection of all underground sources of drinking water (USDWs). The extension under this section may not exceed one (1) year.

Financial responsibility shall be maintained during the period of inactivity in accordance with Part II, Section F. Once a permit expires under this part, the full permitting process, including opportunity for public comment, must be repeated before authorization to inject will be reissued.

2. Requirements for Additional Wells. The permittee may convert and/or construct and operate additional wells within the permitted area, provided that all additional wells meet all conditions as set forth in the permit. All sections of this permit apply to any additional well(s) approved for injection.

(a) Casing and Cementing.

(i) For any newly drilled injection well(s) constructed under this provision, the long string and surface casing shall be secured to the wellbore, with cement, through any subsurface intervals associated with USDWs.

(ii) For any converted well(s), the long string and surface casing shall be secured to the wellbore in a manner similar to construction standards required of the proposed injection well(s) listed in this permit.

(b) Conversion/Construction Notification Requirement. The permittee shall give the Director thirty (30) days notice before proceeding with any activity with an additional well(s). Also the permittee shall submit a plan consisting of a well schematic and construction details, or modifications, for any such proposed enhanced recovery injection well(s). The plan must first be approved by the Director, and the permittee shall not begin implementation of the plan until after receiving written authorization from the Director.

(c) Formation Logging and Testing. All required testing and logging has been performed in accordance with Part II, Section 6. (a) & (b). For wells being converted (from production to injection), only those logs or tests which can physically be performed are required.

(d) Area of Review (AOR) Requirements. In conjunction with (b) above, the permittee shall submit information on any well, within a 1/4-mile of the Area Permit boundary, which was not included in the original application. This information shall include the well location, casing and cementing details, top of cement (calculated or logged), depths to tops and bottom of any USDWs, formation depths, and P&A plan(s).

(e) Corrective Action. For any wells, that penetrate the injection zone within the AOR, which are improperly sealed, completed, or abandoned, the Director may require such corrective action as is necessary to prevent movement of fluid out of the injection zone and into USDWs. Requirements may include such actions as remedial well construction or injection pressure limitations.

3. Tubing and Packer Specifications. The injection wells will be equipped with 2-7/8 inch tubing, with a packer set above the injection zone. The permittee is required to set the packer at a distance of no more than 100 feet above the uppermost perforations.

4. Monitoring Devices. The operator shall provide and maintain in good operating condition:

- (a) a tap on the suction line for the purpose of obtaining representative samples of the injection fluids;
- (b) two (2), one-half (1/2) inch Female Iron Pipe (FIP) fittings, isolated by plug or globe valves, and located: 1) at the wellhead on the tubing; and 2) on the tubing/casing annulus, and positioned to allow attachment of 1/2 inch Male Iron Pipe (MIP) gauges or the attachments for equivalent "quick-disconnect" gauges.

The operator shall always have in his possession calibrated gauges for the use of their field personnel to monitor tubing injection pressure and tubing/casing annulus pressure. The calibrated gauges shall be certified for at least ninety-five (95) percent accuracy throughout the range of anticipated injection pressures; and

- (c) a non-resettable flow meter with cumulative volume recorder that is certified for at least ninety-five (95) percent accuracy, throughout the range of injection rates allowed by the permit.

5. Proposed Changes and Workovers. The permittee shall give advance notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted well. Major alterations or workovers of the permitted well shall meet all conditions as set forth in this permit. A major alteration or workover shall be considered any work performed, which affects casing, packer(s), or tubing. For the conversion or construction of any additional well(s), the permittee shall give the Director thirty (30) days notice of the proposed activity as per Part II, Section A. 2. (b). A demonstration of mechanical integrity shall be performed within thirty (30) days of completion of any workover and/or alterations, and prior to resuming injection activities in accordance with Part II, Section C. 3. (a).

The permittee shall provide all records of well workovers, logging, or other test data to EPA within sixty (60) days of completion of the activity. Appendix B contains samples of the appropriate reporting forms.

6. Formation Testing and Logging.

- (a) Testing. Upon conversion and/or construction of each well, the permittee is required to determine the injection zone fluid pore pressure (static bottom hole pressure) prior to commencement of disposal operations.
- (b) Step-Rate Test. A step-rate injectivity test shall be performed on at least one (1) of the proposed injection wells to determine the formation parting pressure and the results submitted to the EPA. This testing may be performed prior to full operation, or within three (3) months after injection operations are initiated.
- (c) Logging. The permittee shall conduct appropriate down-hole logging prior to the setting of production casing on all newly constructed wells. The following suite of logs are required; Dual Induction (DIL) and Compensated Density/Neutron (CNL-FDC). A Cement Bond/Gamma Ray log shall be run after casing is set. All logging results shall be accompanied by a brief written narrative (prepared by a knowledgeable log analyst) identifying the USDWs, formation tops, confining layers, injection zones and top of cement.

B. CORRECTIVE ACTION

The operator is not required to take any corrective action on any of the forty-nine (49) production wells or the five (5) plugged and abandoned wells within the area of review (AOR), before the effective date of the permit. The manner in which the wells are cased and cemented will prevent any migration of fluids from the injection zones into underground sources of drinking water (USDWs) in the Uinta Formation.

C. WELL OPERATION

- 1. Prior to Commencing Injection (Initial Wells). Individual enhanced recovery injection operations for the four (4) existing production wells (Ute Tribal #1-8, #5-8, #4-18 and #5-18) may not commence until the permittee has complied with both (a) and (b), as follows:

(a) All construction for each respective well is complete and the logging and/or testing requirements have been fulfilled, and the permittee has submitted a Well Rework Record (EPA Form 7520-12). Appendix B contains samples of the appropriate reporting forms.

(i) The Director has inspected or otherwise reviewed the newly converted injection well(s) and he has notified the operator that the well(s) is in compliance with the conditions of the permit; or

(ii) The Permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well(s) within thirteen (13) days of the date the Director has received the Well Rework Record, paragraph (a) above; in which case prior inspection or review is waived and the permittee may commence injection. However, in all circumstances, item (b) below must be satisfied.

(b) The permittee demonstrates that a given well(s) has mechanical integrity in accordance with 40 CFR § 146.8 and Part II, Section C. 3. (a), below, and has received notice from the Director that such a demonstration is satisfactory. The permittee shall notify EPA two (2) weeks prior to conducting this test so that an authorized representative of the EPA may be present to observe the test. Results of the test shall be submitted to the Director as soon as possible, but no later than thirty (30) days after the demonstration.

2. Prior to Commencing Injection (Additional wells). Injection operations for additional wells may not commence until the permittee has complied with both (a) and (b) below:

(a) All required formation testing and logging has been performed in accordance with Part II, Section A. 2. (c), conversion and/or construction is complete, and the permittee has submitted the pertinent Well Completion Reports (EPA Form No. 7520-10) or Well Rework Record (EPA Form No. 7520-12) in Appendix B; and

- (i) the Director has inspected or otherwise reviewed any new injection wells and finds them in compliance with the conditions of the permit; or
 - (ii) the permittee has not received notice from the Director of his, or her, intent to inspect, or otherwise review, any of the new injection wells within thirteen (13) days of the date of receipt of the notice in paragraph (i) of this permit, in which case prior inspection or review is waived and the permittee may commence injection. (Note: In all circumstances item (b), below, must also be satisfied.)
- (b) The permittee demonstrates that a given well(s) has mechanical integrity in accordance with 40 CFR § 146.8 and Part II, Section C. 3. (a), and the permittee has received notice from the Director that such a demonstration is satisfactory. The permittee shall notify EPA two (2) weeks prior to conducting this test so that an authorized representative may be present to observe the test. Results of the test shall be submitted to the Director as soon as possible but no later than thirty (30) days after the demonstration.

3. Mechanical Integrity.

- (a) Method of Demonstrating Mechanical Integrity. A demonstration of the absence of significant leaks in the casing, tubing, and/or packer must be made by performing a tubing/casing annulus pressure test. This test shall be for a minimum of forty-five (45) minutes at: (1) a pressure of 300 pounds per square inch gauge (psig) measured at the surface, if the well is shut-in; or (2) a pressure differential of 200 psig between the tubing and the tubing/casing annulus, if injection activities are continued during the test. The tubing/casing annulus shall be filled with a non-corrosive fluid (either a non-toxic liquid or the injection liquid) at least twenty-four (24) hours in advance of the test. Pressure values shall be recorded at five-minute intervals. A well passes the mechanical integrity test if there is less than a ten (10) percent decrease or increase in pressure over the forty-five (45) minute period.

(b) Schedule for Demonstration of Mechanical Integrity. A demonstration of mechanical integrity shall be made at regular intervals, no less frequently than once every five (5) years, in accordance with 40 CFR § 146.8, and paragraph (a), above, unless otherwise modified. Initiation of mechanical integrity demonstrations will be according to the following provisions:

(i) It shall be the permittee's responsibility to arrange and conduct the routine five-year tubing/casing annulus pressure test demonstration. The permittee shall notify the Director of his intent to demonstrate mechanical integrity at least two (2) weeks days prior to such demonstration. Results of the test shall be submitted to the Director as soon as possible, but no later than sixty (60) days after the demonstration.

(ii) In addition to any demonstration made under paragraph (i) above, the Director may require a demonstration of mechanical integrity at any time during the permitted life of a well.

(c) Loss of Mechanical Integrity. If the well(s) fail to demonstrate mechanical integrity during a test, or a loss of mechanical integrity as defined by 40 CFR § 146.8 becomes evident during operation, the permittee shall notify the Director in accordance with Part III, Section E. 10. of this permit. Furthermore, injection activities shall be terminated immediately; and operation shall not be resumed until the permittee has taken necessary actions to restore integrity to the well and EPA gives approval to recommence injection.

4. Injection Interval. Fluid injection shall be limited to the gross interval within the Green River Formation between the approximate depths of 3,750 and 5,850 feet. The Green River Formation, from its average top at ±1,410 feet to ±3,974 feet (upper confining zone), is composed of impermeable calcareous shales and continuous beds of microcrystalline dolomite. Petroglyph proposes to inject water into multiple lenticular sands which are distributed throughout a 2,100-foot section of the Green River Formation. These sands are individually separated by shale which act as isolation barriers (confining zones) for the waterflood.

5. Injection Pressure Limitation.

- (a) Injection pressure, measured at the surface, shall not exceed an amount that the Director determines is appropriate to ensure that injection does not initiate new fractures or propagate existing fractures in the confining zone adjacent to USDWs.
- (b) The exact pressure limit may be increased or decreased by the Director to ensure that the requirements in paragraph (a) are fulfilled. In order to determine an exact pressure limit, the permittee shall conduct a step-rate injection test or other authorized well test(s) that will serve to determine the fracture pressure of the injection zone. Test procedures shall be pre-approved by the Director. The Director will specify in writing, to the permittee, any increase or decrease to the injection pressure based upon the test results and/or other parameters reflecting actual injection operations. Until such time that this demonstration is made, the initial injection pressure, measured at the surface, shall not exceed 1,900 psig.

6. Injection Volume Limitation. There is no limitation on the number of barrels of water per day (BWPD) that shall be injected into the Green River sand perforations, provided further that in no case shall injection pressure exceed that limit shown in Part II, Section C. 5. (b) of this permit.

7. Injection Fluid Limitation. Injection fluids are limited to those which are identified in 40 CFR § 144.6. (b) (2) as fluids used for enhanced recovery of oil or natural gas. The permittee shall provide a listing of the sources of the injected fluids in accordance with the reporting requirements in Part II, Section D. 4. of this permit.

8. Annular Fluid. The annulus between the tubing and the casing shall be filled with fresh water and/or brines treated with a corrosion inhibitor, a scale inhibitor, and an oxygen scavenger, or other fluid as approved, in writing, by the Director.

9. Operation of Additional Wells. The permittee may operate additional wells within the permit area, provided that the additional wells meet all conditions as set forth in the permit.

D. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Well Monitoring Program. Samples and measurements shall be representative of the monitored activity. The permittee shall utilize the applicable analytical methods described in Table 1 of 40 CFR § 136.3, or in Appendix III of 40 CFR Part 261, or in certain circumstances, by other methods that have been approved by the EPA Administrator. Monitoring shall consist of:
 - (a) Analysis of the disposed fluids, performed:
 - (i) annually for Total Dissolved Solids, Ph, Specific Conductivity, and Specific Gravity from the common facility; however, if injection is maintained from more than one well from each common facility, then only one annual analysis is required for that facility.
 - (ii) whenever there is a change in the source of disposed fluids. A comprehensive water analysis shall be submitted to the Director within thirty (30) days of any change in injection fluids.
 - (b) Observations of flow rate, injection pressure, annulus pressure, and cumulative volume shall be conducted weekly. All observations shall be observed and/or measured at approximately the same time. Observations of each shall be recorded monthly.
- 2) Monitoring Information. Records of any monitoring activity required under this permit shall include:
 - (a) The date, exact place, the time of sampling or field measurements;
 - (b) The name of the individual(s) who performed the sampling or measurements;
 - (c) The exact sampling method(s) used to take samples;
 - (d) The date(s) laboratory analyses were performed;

- (e) The name of the individual(s) who performed the analyses;
- (f) The analytical techniques or methods used by laboratory personnel; and
- (g) The results of such analyses.

3. Recordkeeping.

- (a) The permittee shall retain records concerning:
 - (i) the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment which has been carried out in accordance with the Plugging and Abandonment Plan shown in Appendix C, and is consistent with 40 CFR § 146.10.
 - (ii) all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least five (5) years from the date of the sample, measurement or report throughout the operating life of the well.
- (b) The permittee shall continue to retain such records after the retention period specified in paragraphs (a) (i) and (a) (ii) unless he delivers the records to the Director or obtains written approval from the Director to discard the records.
- (c) The Permittee shall maintain copies (or originals) of all pertinent records at the office of Petroglyph Operating Company, Inc., 6209 North Highway 61, Hutchinson, Kansas 67502.

4. Annual Reporting. The permittee shall submit an Annual Report, whether injecting or not, to the Director summarizing the results of the monitoring required by Part II, Section D. 1. (a) and (b) of this permit. The permittee shall also include a listing of all sources of the fluids injected during the year identifying the source by either the well name(s), the field name(s), or the facility name(s).

The first Annual Report shall cover the period from the effective date of the permit through December 31 of that year. Subsequent Annual Reports shall cover the period from January 1 through December 31. Annual Reports shall be submitted by February 15 of the following year following data collection. Appendix B contains Form 7520-11 which may be copied and used to submit the Annual Report.

E. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment. The permittee shall notify the Director forty-five (45) days before abandonment of the well.
2. Plugging and Abandonment Plan. The plugging and abandonment plans submitted by the permittee, are incorporated into the permit, (Appendix C of the Permit) and shall be binding on the permittee. These plans have been reviewed and approved by the EPA. The EPA reserves the right to change the manner in which the well will be plugged if the well is modified during its permitted life or if the well is not made consistent with EPA requirements for construction and mechanical integrity. The Director may require the permittee to update the estimated plugging cost periodically. Such estimates shall be based upon costs which a third party would incur to plug the well according to the plan.
3. Cessation of Injection Activities. After a cessation of operations of two (2) years, the permittee shall plug and abandon the well in accordance with the Plugging and Abandonment Plan, unless the permittee:
 - (a) has provided notice to the Director; and
 - (b) has demonstrated that the well will be used in the future; and
 - (c) has described actions or procedures, satisfactory to the Director, that will be taken to ensure that the well will not endanger underground sources of drinking water during the period of temporary abandonment.

4. Plugging and Abandonment Report(s). Within sixty (60) days after plugging the well, the permittee shall submit a report on Form 7520-13 to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and the report shall consist of either: (1) a statement that the well was plugged in accordance with the plan; or (2) where actual plugging differed from the plan, a statement that specifies the different procedures followed.
5. Plugging of Additional Wells. The permittee may plug and abandon any future additional enhanced recovery injection wells within the permit area that were converted or constructed under Part II, Section A., provided that the plugging and abandonment meets all conditions as set forth in this permit.

F. FINANCIAL RESPONSIBILITY

1. Demonstration of Financial Responsibility. The permittee is required to maintain continuous financial responsibility and resources to close, plug, and abandon the injection wells as provided in the plugging and abandonment plan.
 - (a) The permittee may submit a written request to EPA to change the type of financial mechanism or instrument utilized. A change in demonstration of financial responsibility must be approved in writing by the Director.
2. Insolvency of Financial Institution. In the event that an alternate demonstration of financial responsibility has been approved under (a), above, the permittee must submit an alternate demonstration of financial responsibility acceptable to the Director within sixty (60) days after either of the following events occur:
 - (a) The institution issuing the trust or financial instrument files for bankruptcy; or
 - (b) The authority of the trustee institution to act as trustee, or the authority of the institution issuing the financial instrument, is suspended or revoked.

3. Cancellation of Demonstration by Financial Institution.
The permittee must submit an alternative demonstration of financial responsibility acceptable to the Director, within sixty (60) days after the institution issuing the trust or financial instrument serves 120-day notice to the EPA of their intent to cancel the trust or financial instrument.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground disposal in accordance with the conditions of this permit. The permittee, as authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon, or conduct any other disposal activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or otherwise adversely affect the health of persons. Any underground disposal activity not authorized in this permit or otherwise authorized by permit or rule is prohibited. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any enforcement action brought under the provisions of Section 1431 of the Safe Drinking Water Act (SDWA), 42 USC §300i, or any other law governing protection of public health or the environment for any imminent and substantial endangerment to human health, or the environment, nor does it serve as a shield to the permittee's independent obligation to comply with all UIC regulations.

B. PERMIT ACTIONS

1. Modification, Reissuance, or Termination. The Director may, for cause or upon a request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR §§ 124.5, 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR § 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.
2. Conversions. The Director may, for cause or upon a request from the permittee, allow conversion of the well from a Class II salt water disposal well to a non-Class II well. Requests to convert the disposal well from its Class II status to a non-Class II well,

such as, a production well, must be made in writing to the Director. Conversion may not proceed until a permit modification indicating the conditions of the proposed conversion is received by the permittee. Conditions of the modification may include such items as, but is not limited to, approval of the proposed well rework, follow up demonstration of mechanical integrity, and well specific monitoring and reporting following the conversion.

3. Transfers. This permit is not transferrable to any person except after notice is provided to the Director and the requirements of 40 CFR § 144.38 are complied with. The Director may require modification, or revocation and reissuance, of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.
4. Operator Change of Address. Upon the operator's change of address, notice must be given to the appropriate EPA office at least fifteen (15) days prior to the effective date.

C. SEVERABILITY

If any provision of this permit or the application of any provision of this permit to any circumstance is stayed or held invalid, all remaining provisions of this permit shall remain fully effective and enforceable, except for those provisions which are not severable from the stayed or invalid provision.

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and 40 CFR §144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). EPA will deny claims of confidentiality including but not limited to the following information:

- The name and address of the permittee; and
- Information which deals with the existence, absence or level of contaminants in drinking water.

E. GENERAL DUTIES AND REQUIREMENTS

1. Duty to Comply. The permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification. Such noncompliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA).
2. Penalties for Violations of Permit Conditions. Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the SDWA and may be subject to such actions pursuant to the RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.
3. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.
5. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.
6. Duty to Provide Information. The permittee shall furnish the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and

reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

7. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 - (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - (d) Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the SDWA any substances or parameters at any location.
8. Records of Permit Application. The permittee shall maintain records of all data required to complete the permit application and any supplemental information submitted for a period of five (5) years from the effective date of this permit. This period may be extended by request of the Director at any time.
9. Signatory Requirements. All reports or other information requested by the Director shall be signed and certified according to 40 CFR § 144.32.
10. Reporting of Noncompliance.
 - (a) Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(b) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than thirty (30) days following each schedule date.

(c) Twenty-four Hour Reporting.

(i) The permittee shall report to the Director any noncompliance which may endanger health or the environment. Information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances by telephoning EPA at (303) 293-1550 (during normal business hours) or at (303) 293-1788 (for reporting at all other times). The following information shall be included in the verbal report:

(A) Any monitoring or other information which indicates that any contaminant may cause endangerment to an underground source of drinking water (USDW).

(B) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs.

(ii) A written submission shall also be provided to the Director within five (5) days of the time the permittee becomes aware of the potential for endangerment to health or the environment. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(d) Other Noncompliance. The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part III, Section E. 10. (c) (ii) of this permit.

- (e) Other Information. Where the permittee becomes aware that any relevant facts were not submitted in the permit application, or incorrect information was submitted in a permit application or in any report to the Director, the permittee shall submit such correct facts or information within two (2) weeks of the time such information becomes known.

APPENDIX A

(CONVERSION/CONSTRUCTION DETAILS)

Ute Tribal #1-8
Ute Tribal #5-8
Ute Tribal #4-18
Ute Tribal #5-18

UPON REENTRY OF THESE OIL WELLS, THE CONVERSION TO AN
ENHANCED RECOVERY WELL WILL BE AS FOLLOWS:

- (1) Move in and rig up service unit (MIRUSU), trip out of hole (TOH) with rods and tubing.
- (2) Trip in hole (TIH) w/ bit and casing scraper to total depth (TD) to ensure that the casing is clean. Any fill encountered will be circulated out of the well.
- (3) Cement squeeze and/or isolate by CIBP selected perforations as required. The proposed downhole injection equipment will then be run on tubing and set at the appropriate depth.
- (4) The casing annulus will be filled with the recommended packer fluid.
- (5) Notify EPA of Mechanical Integrity Testing, with EPA authorized representative present, run MIT, if passed, place well on injection status upon approval from the Director.

**Ute Tribal #1-8
Wellbore Diagram
After Conversion**

Water Samples and Locations

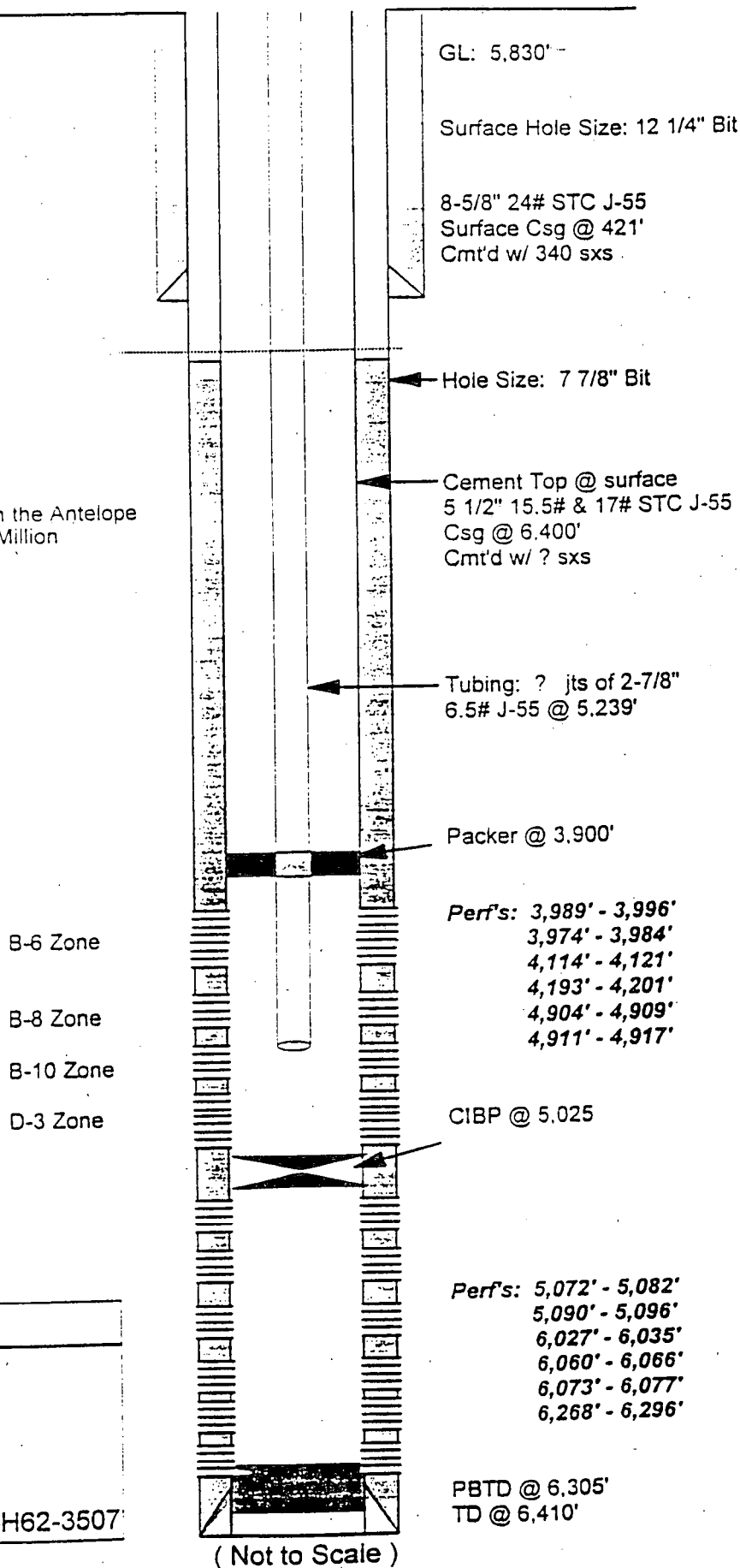
No USDW found in Uinta Formation

Top of Green River Formation at 1,270'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope Creek Project Area equals 16,722.55 Parts Per Million

Inland Resources Inc.
Ute Tribal 1-8
(754' FNL & 888' FWL)
NW NW 8-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-30759; Lease #14-20-H62-3507



**Ute Tribal #5-8
Wellbore Diagram
After Conversion**

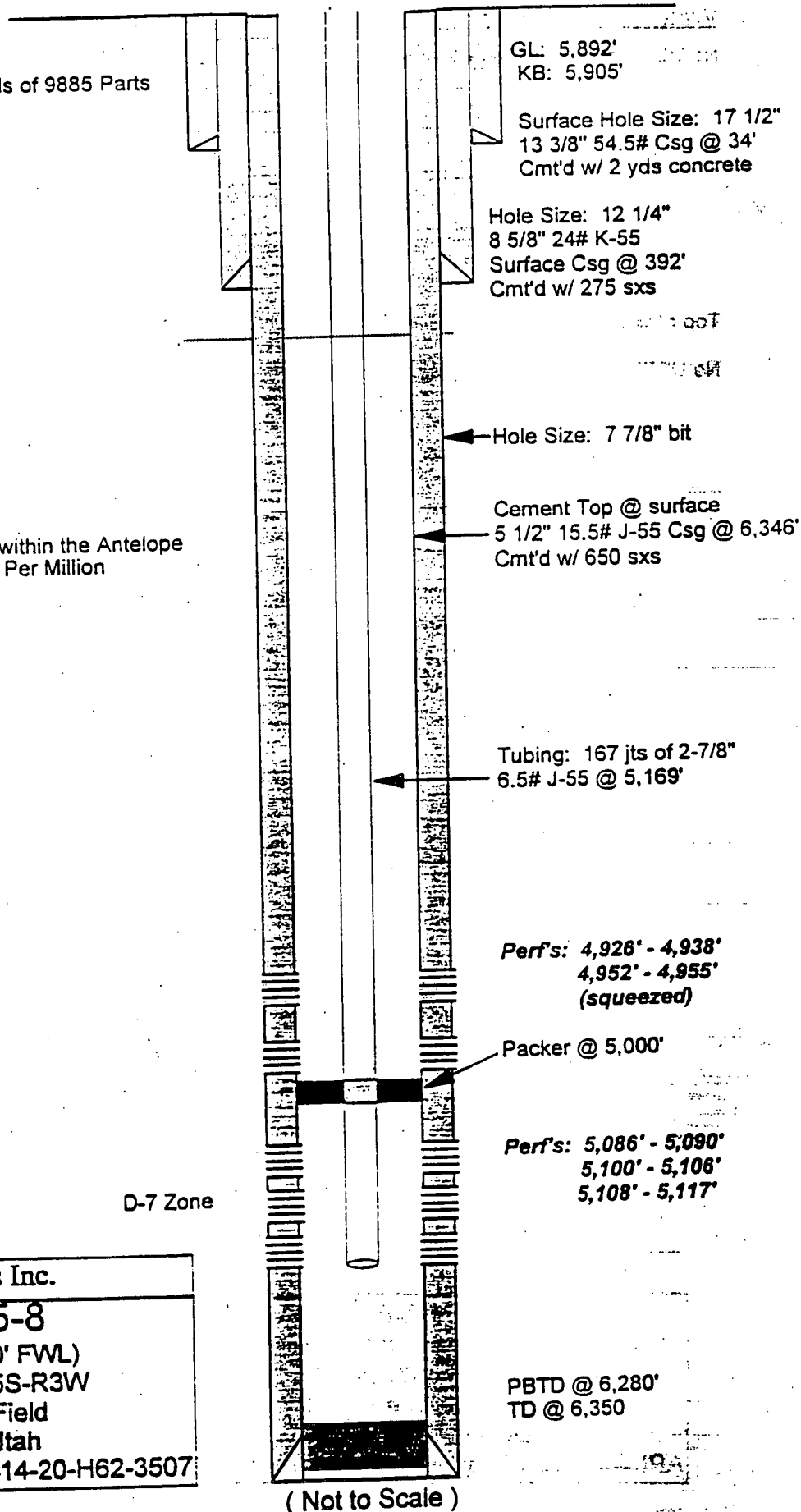
Water Samples and Locations

USDW found in Uinta Formation
Water found at 200' with total dissolved solids of 9885 Parts
Per Million

Top of Green River Formation at 1,360'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million



Inland Resources Inc.
Ute Tribal 5-8
(1,550' FNL & 1,550' FWL)
SE NW Section 8-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31307; Lease #14-20-H62-3507

**Ute Tribal #4-18
Wellbore Diagram
After Conversion**

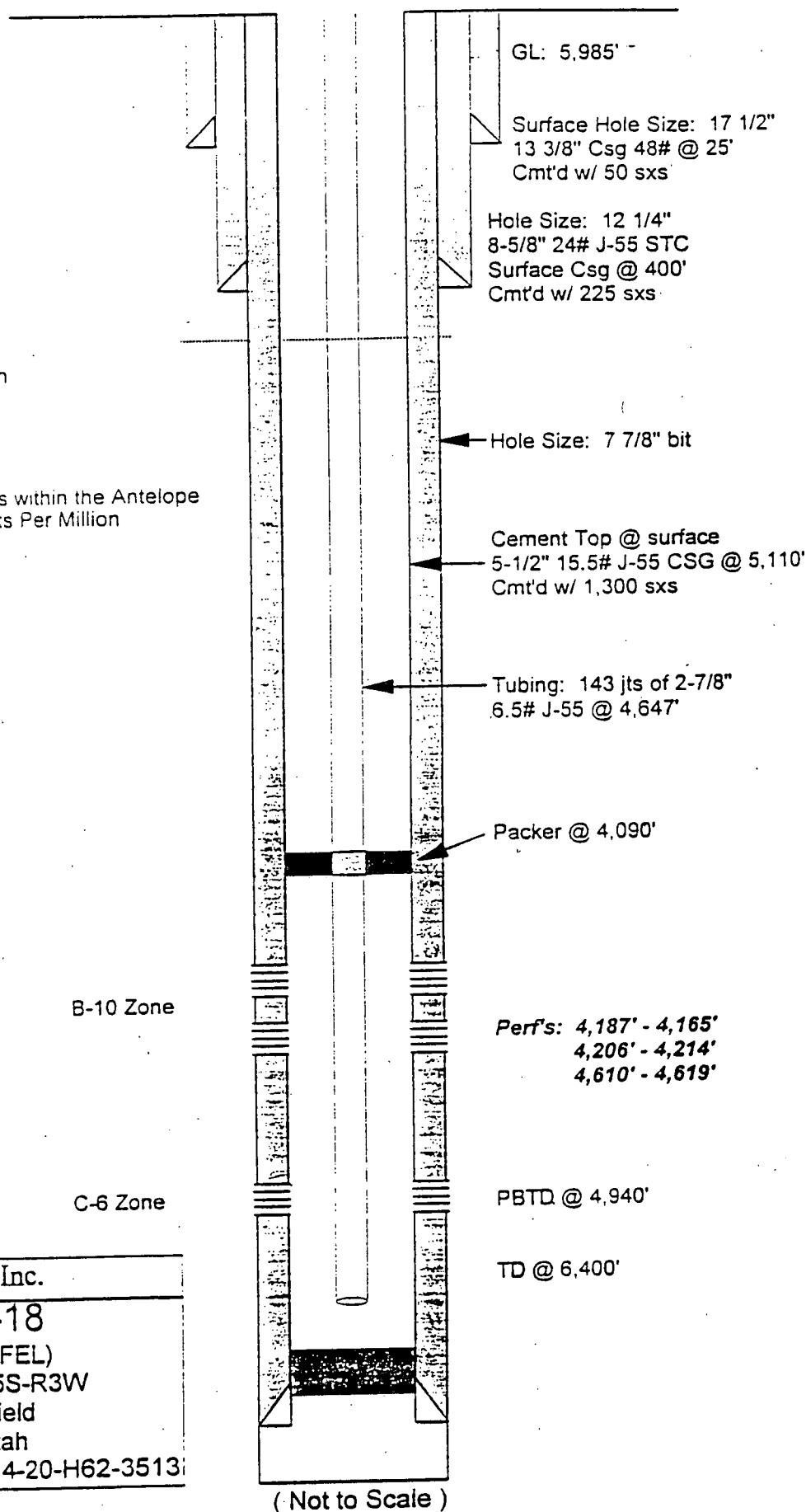
Water Samples and Locations

No USDW found in Uinta Formation

Top of Green River Formation at 1,510'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope Creek Project Area equals 16,722.55 Parts Per Million
(See Exhibit 2 this section)



Inland Resources Inc.
Ute Tribal 4-18
(812' FNL & 1,768' FEL)
NW NW Section 18-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31091; Lease #14-20-H62-3513

**Ute Tribal #5-18
Wellbore Diagram
After Conversion**

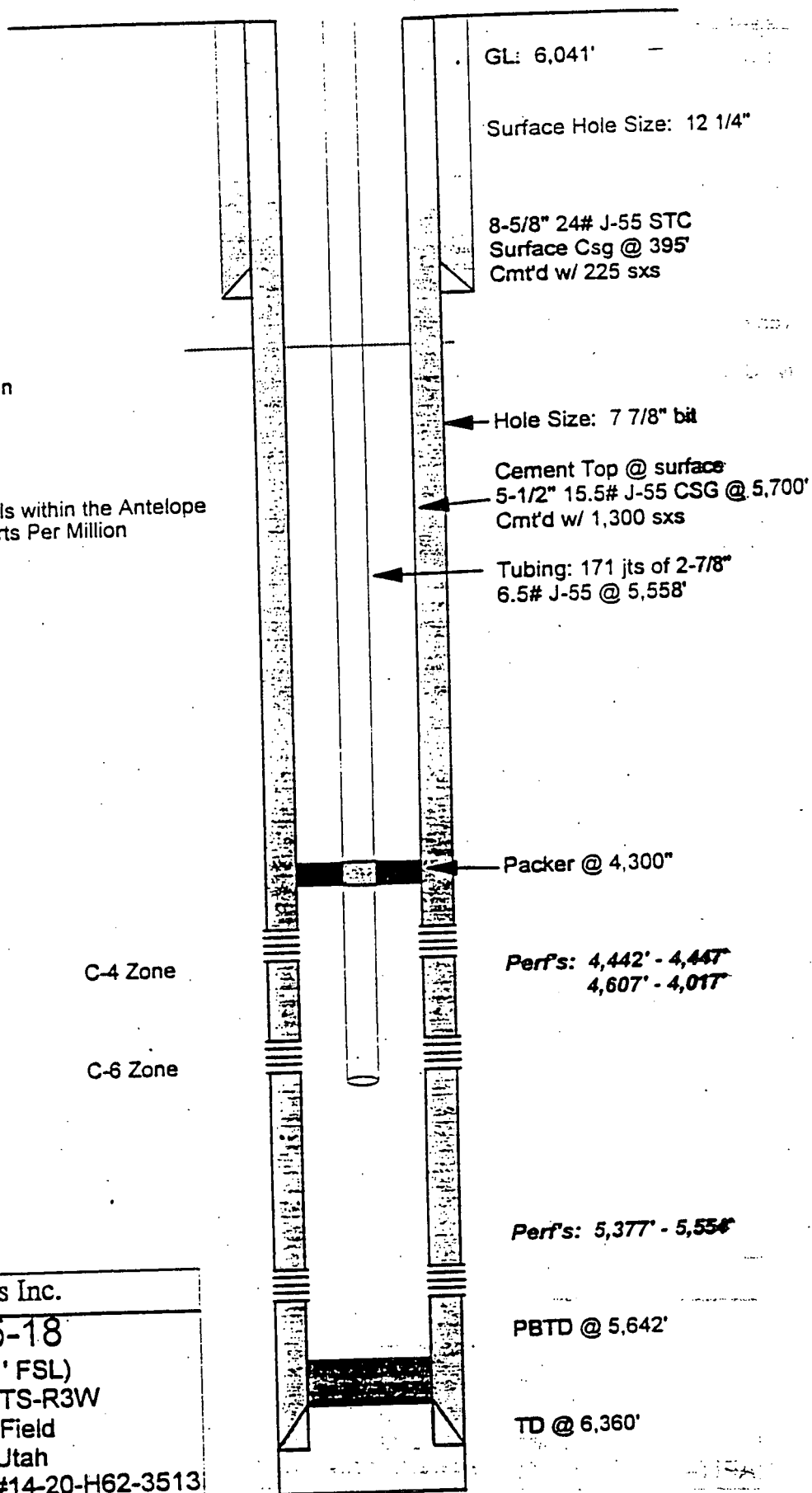
Water Samples and Locations

No USDW found in Uinta Formation

Top Green River Formation @ 1,502'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope Creek Project Area equals 16,722.55 Parts Per Million
(See Exhibit 2 this section)



(Not to Scale)

Inland Resources Inc.
Ute Tribal 5-18
(667' FEL & 2,151' FSL)
NE SE Section 18-5TS-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31180; Lease #14-20-H62-3513

APPENDIX B

REPORTING FORMS

1. EPA Form 7520- 7: APPLICATION TO TRANSFER PERMIT
2. EPA Form 7520-10: COMPLETION REPORT FOR BRINE DISPOSAL WELL
3. EPA Form 7520-11: ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT
4. EPA Form 7520-12: WELL REWORK RECORD
5. EPA Form 7520-13: PLUGGING RECORD
6. EPA Form R8: MECHANICAL INTEGRITY PRESSURE TEST


 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 WASHINGTON, DC 20460

APPLICATION TO TRANSFER PERMIT

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

 LOCATE WELL AND OUTLINE UNIT ON
 SECTION PLAT — 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY

WELL STATUS

TYPE OF PERMIT

☐ Class I☐ Operating☐ Individual☐ Class II☐ Modification/Conversion☐ Area☐ Brine Disposal☐ Proposed

Number of Wells _____

☐ Enhanced Recovery☐ Hydrocarbon Storage☐ Class III☐ Other

Lease Name

Well Number

NAME(S) AND ADDRESS(ES) OF NEW OWNER(S)

NAME AND ADDRESS OF NEW OPERATOR

Attach to this application a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them.

The new permittee must show evidence of financial responsibility by the submission of surety bond, or other adequate assurance, such as financial statements or other materials acceptable to the director.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
U.S. STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

Form Approved
OMB No. 2040-0042
Approval expires 9-30-96

COMPLETION REPORT FOR BRINE DISPOSAL, HYDROCARBON STORAGE, OR ENHANCED RECOVERY WELL

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location ____ ft. from (N/S) ____ Line of quarter section

and ____ ft. from (E/W) ____ Line of quarter section

WELL ACTIVITY

TYPE OF PERMIT

☐

Brine Disposal

☐

Individual

Estimated Fracture Pressure
of Injection Zone

☐

Enhanced Recovery

☐

Area

☐

Hydrocarbon Storage

Number of Wells ____

Anticipated Daily Injection Volume (Bbls)

Injection Interval

Average

Maximum

Feet

to Feet

Anticipated Daily Injection Pressure (PSI)

Depth to Bottom of Lowermost Freshwater Formation
(Feet)

Average

Maximum

Type of Injection Fluid (Check the appropriate block(s))

☐

Salt Water

☐

Brackish Water

☐

Fresh Water

☐

Liquid Hydrocarbon

☐

Other

Lease Name

Well Number

Name of Injection Zone

Date Drilling Began

Date Well Completed

Permeability of Injection Zone

Date Drilling Completed

Porosity of Injection Zone

CASING AND TUBING

CEMENT

HOLE

OD Size

Wt/Ft — Grade — New or Used

Depth

Secks

Class

Depth

Bit Diameter

INJECTION ZONE STIMULATION

WIRE LINE LOGS. LIST EACH TYPE

Interval Treated

Materials and Amount Used

Log Types

Logged Intervals

Complete Attachments A — E listed on the reverse.

CERTIFICATION

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32).

NAME AND OFFICIAL TITLE (Please type or print)

DATE SIGNED

ANNUAL I

OSAL/INJECTION WELL MO.

DRING REPORT

NAME AND ADDRESS OF EXISTING PERMITTEE

NAME AND ADDRESS OF SURFACE OWNER

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT - 640 ACRES

STATE

COUNTY

PERMIT NUMBER

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface
Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

WELL ACTIVITY

TYPE OF PERMIT

☐ Brine Disposal

☐ Individual☐ Enhanced Recovery☐ Area

☐ Hydrocarbon Storage

Number of Wells _____

Lease Name

Well Number

INJECTION PRESSURE

TOTAL VOLUME INJECTED

TUBING - CASING ANNULUS PRESSURE
(OPTIONAL MONITORING)

MONTH

YEAR

AVERAGE PSIG

MAXIMUM PSIG

88L

MCF

MINIMUM PSIG

MAXIMUM PSIG

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED _____

WELL REWORK RECORD

NAME AND ADDRESS OF CONTRACTOR

PERMIT NUMBER

RANGE

and _____ ft. from (E/W) _____ Line of quarter section

Number of Wells ____

Well Number

To

Id

Logged Intervals

FDA Form 7520-12 (2-84)



PLUGGING RECORD

NAME AND ADDRESS OF PERMITTEE

NAME AND ADDRESS OF CEMENTING COMPANY

STATE

COUNTY

PERMIT NUMBER

LOCATE WELL AND OUTLINE UNIT ON
SECTION PLAT — 640 ACRES

SURFACE LOCATION DESCRIPTION

1/4 OF

1/4 OF

1/4 SECTION

TOWNSHIP

RANGE

LOCATE WELL IN TWO DIRECTIONS FROM NEAREST LINES OF QUARTER SECTION AND DRILLING UNIT

Surface

Location _____ ft. from (N/S) _____ Line of quarter section

and _____ ft. from (E/W) _____ Line of quarter section

TYPE OF PERMIT

- ☐
- Individual
-
- ☐
- Area

Describe in detail the manner in which the fluid was placed and
the method used in introducing it into the hole

Number of Wells

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT/LB/FT	PUT IN WELL (FT)	LEFT IN WELL (FT)	HOLE SIZE

WELL ACTIVITY

METHOD OF EMPLACEMENT OF
CEMENT PLUGS

- ☐
- Brine Disposal
-
- ☐
- Enhanced Recovery
-
- ☐
- Hydrocarbon Storage

- ☐
- The Balance Method
-
- ☐
- The Osmo Sinter Method
-
- ☐
- The Two-Plug Method

Lease Name

Well Number

- CEMENTING TO PLUG AND ABANDON DATA -

PLUG #1

PLUG #2

PLUG #3

PLUG #4

PLUG #5

PLUG #6

PLUG #7

Cementing Date

Size of Hole or Pipe in which Plug Placed (inches)

Depth to Bottom of Tubing or Drill Pipe (ft.)

Sacks of Cement Used (each plug)

Slurry Volume Pumped (cu. ft.)

Calculated Top of Plug (ft.)

Measured Top of Plug (if tagged ft.)

Slurry Wt. (Lb./Gal.)

True Cement

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS

From

To

From

To

Signature of Cementor or Authorized Representative

Signature of EPA Representative

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (Ref. 40 CFR 122.22).

NAME AND OFFICIAL TITLE (Please type or print)

SIGNATURE

DATE SIGNED

Mechanical Integrity Test Casing/Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date ____/____/9 Time _____ am/pm
Test conducted by: _____
Others present: _____

Well name _____	EPA Number _____
Field name _____	
Location _____ qtr qtr; _____ Section; _____ Township; _____ Range	
Owner/Operator _____	

Time	Test #1	Test #2	Test #3
	psig	psig	psig
0 min	_____	_____	_____
5	_____	_____	_____
10	_____	_____	_____
15	_____	_____	_____
20	_____	_____	_____
25	_____	_____	_____
30 min	_____	_____	_____
35	_____	_____	_____
40	_____	_____	_____
45	_____	_____	_____
50	_____	_____	_____
55	_____	_____	_____
60 min	_____	_____	_____
tubing press	_____ psig	_____ psig	_____ psig

Result (circle) Pass Fail Pass Fail Pass Fail

Signature of Witness: _____

04/04/2000 12:00 PM
12:00 PM 04/04/2000
12:00 PM 04/04/2000

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Page 1

Petroglyph Operating Company

Ute Tribal #1-8
T5S, R3W, Section 8

Plugging and Abandonment Plan

Primary Plan

1. POOH w/ tubulars.
2. RIH Set CIBP @ 3850'.
3. Set 200' cement plug (30 sxs class G cement) above CIBP.
4. Set 200' cement plug (30 sxs class G cement) @ 2400'.
5. Set 100' cement plug (15 sxs class G cement) across base of surface (471'-371').
6. Set 50' cement plug (8 sxs class G cement) from 50' to surface.
7. Pump 75 sxs down annulus or until full returns
8. Set P&A marker.

**Ute Tribal #1-8
Wellbore Diagram
Plugged**

Water Samples and Locations

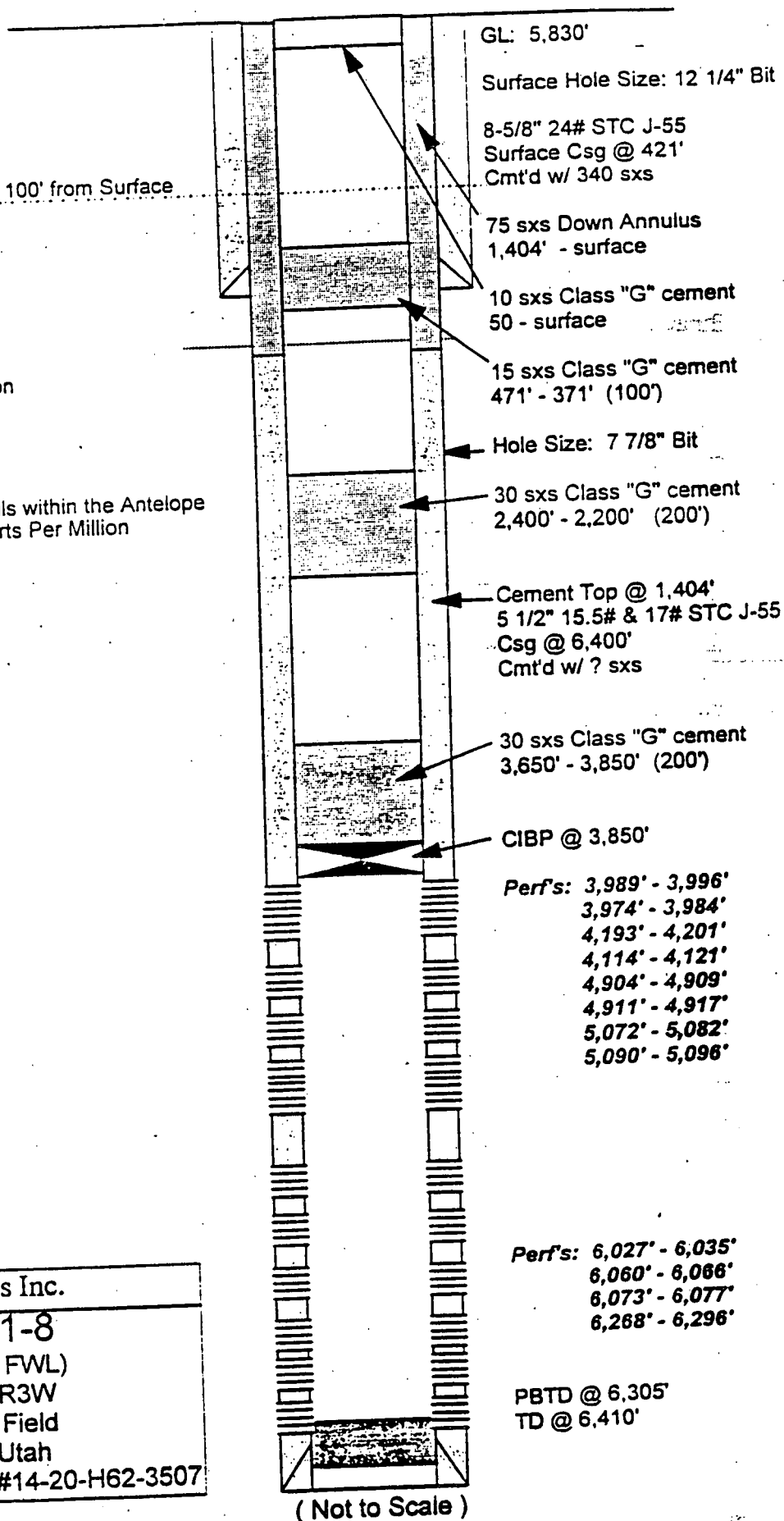
No USDW found in Uinta Formation

Estimated Base USDW 100' from Surface
See Map Section E.

Top of Green River Formation at 1,270'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million



Inland Resources Inc.
Ute Tribal 1-8
(754' FNL & 888' FWL)
NW NW 8-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-30759; Lease #14-20-H62-3507

Petroglyph Operating Company

Ute Tribal #5-8
T5S, R3W, Section 8

Plugging and Abandonment Plan

Primary Plan

1. POOH w/ tubulars.
2. RIH Set CIBP @ 4900'.
3. Set 200' cement plug (30 sxs class G cement) above CIBP.
4. Set 200' cement plug (30 sxs class G cement) @ 2400'.
5. Set 100' cement plug (15 sxs class G cement) across base of surface (442'-342').
6. Set 50' cement plug (8 sxs class G cement) from 50' to surface.
7. Set P&A marker.

**Ute Tribal #5-8
Wellbore Diagram
Plugged**

Water Samples and Locations

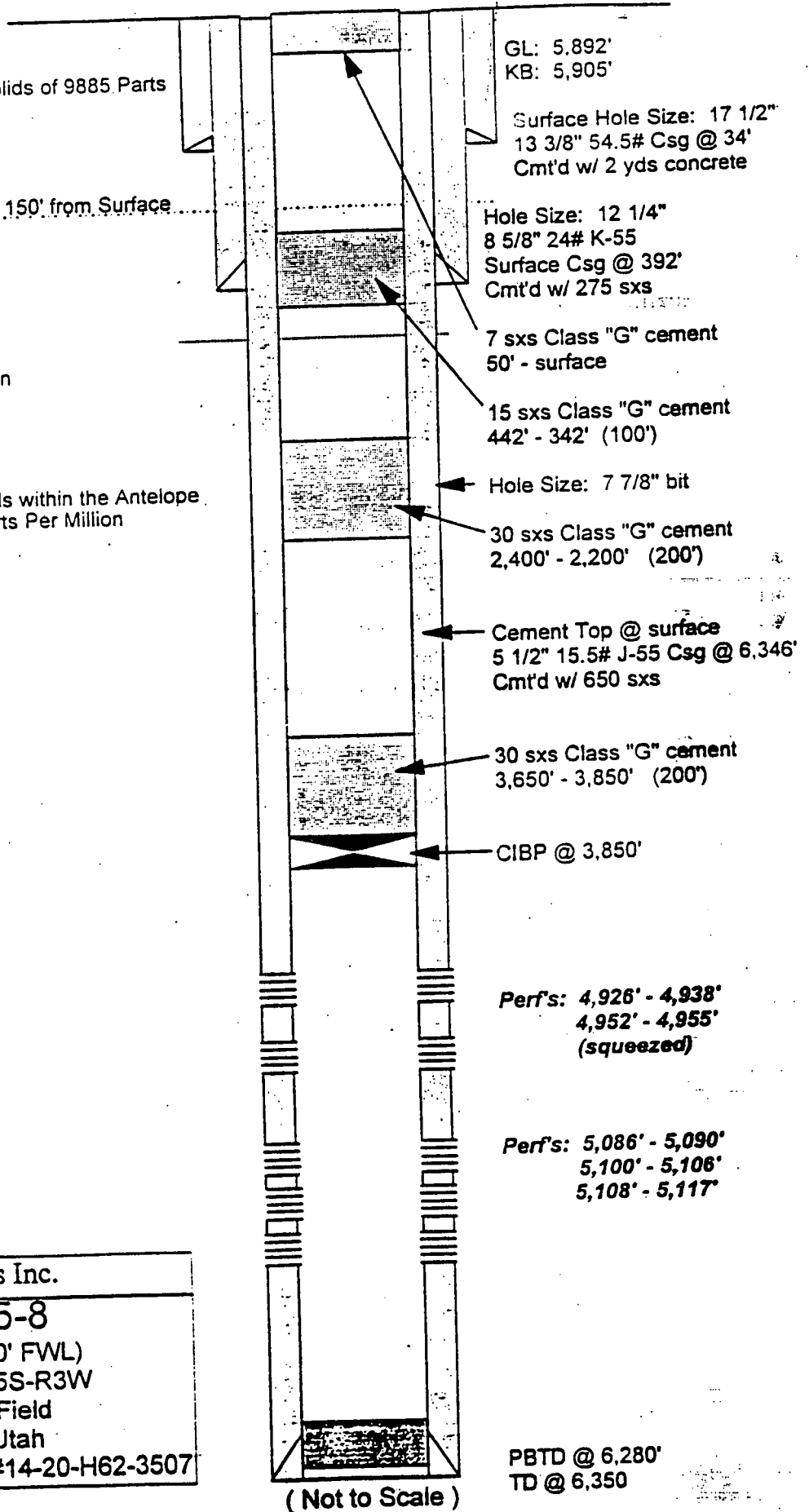
USDW found in Uinta Formation
Water found at 200' with total dissolved solids of 9885 Parts
Per Million

Estimated Base USDW 150' from Surface
See Map Section E.

Top of Green River Formation at 1,360'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million



Inland Resources Inc.
Ute Tribal 5-8
(1,550' FNL & 1,550' FWL)
SE NW Section 8-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31307; Lease #14-20-H62-3507

Petroglyph Operating Company

Ute Tribal #4-18
T5S, R3W, Section 18

Plugging and Abandonment Plan

Primary Plan

1. POOH w/ tubulars.
2. RIH Set CIBP @ 4050'.
3. Set 200' cement plug (30 sxs class G cement) above CIBP.
4. Set 200' cement plug (30 sxs class G cement) @ 2400'.
5. Set 100' cement plug (15 sxs class G cement) across base of surface (450'-350').
6. Set 50' cement plug (8 sxs class G cement) from 50' to surface.
7. Set P&A marker.

**Ute Tribal #4-18
Wellbore Diagram
Plugged**

Water Samples and Locations

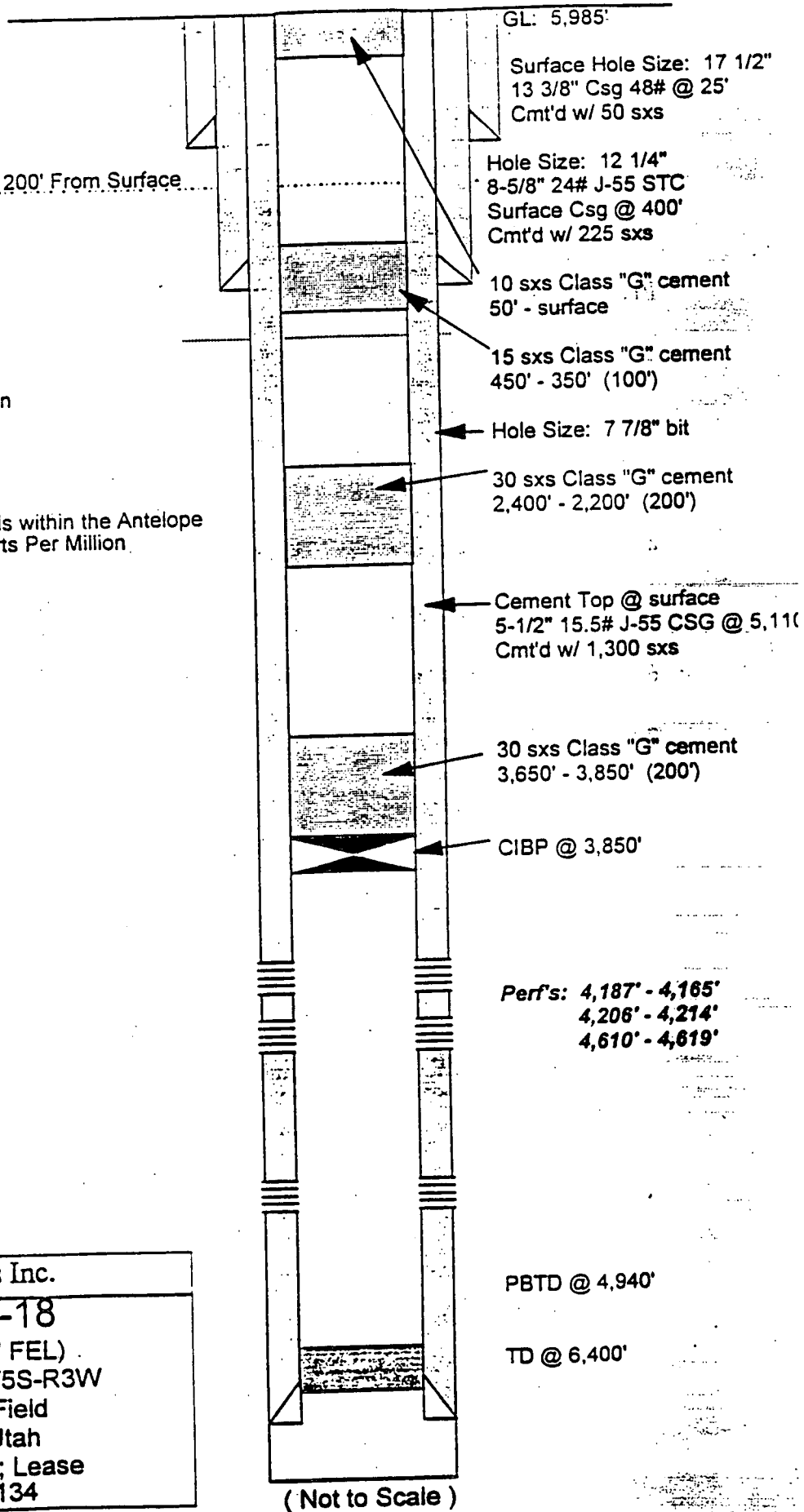
No USDW found in Uinta Formation

Estimated Base USDW 200' From Surface
See Map Section E.

Top of Green River Formation at 1,510'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million
(See Exhibit 2 this section)



Inland Resources Inc.
Ute Tribal 4-18
(812' FNL & 1,768' FEL)
NW NW Section 18-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013-31091; Lease
#14-20-H62-35134

Petroglyph Operating Company

Ute Tribal #5-18
T5S, R3W, Section 18

Plugging and Abandonment Plan

Primary Plan

1. POOH w/ tubulars.
2. RIH Set CIBP @ 4350'.
3. Set 200' cement plug (30 sxs class G cement) above CIBP.
4. Set 200' cement plug (30 sxs class G cement) @ 2400'.
5. Set 100' cement plug (15 sxs class G cement) across base of surface (445'-355').
6. Set 50' cement plug (8 sxs class G cement) from 50' to surface.
7. Set P&A marker.

**Ute Tribal #5-18
Wellbore Diagram
Plugged**

Water Samples and Locations

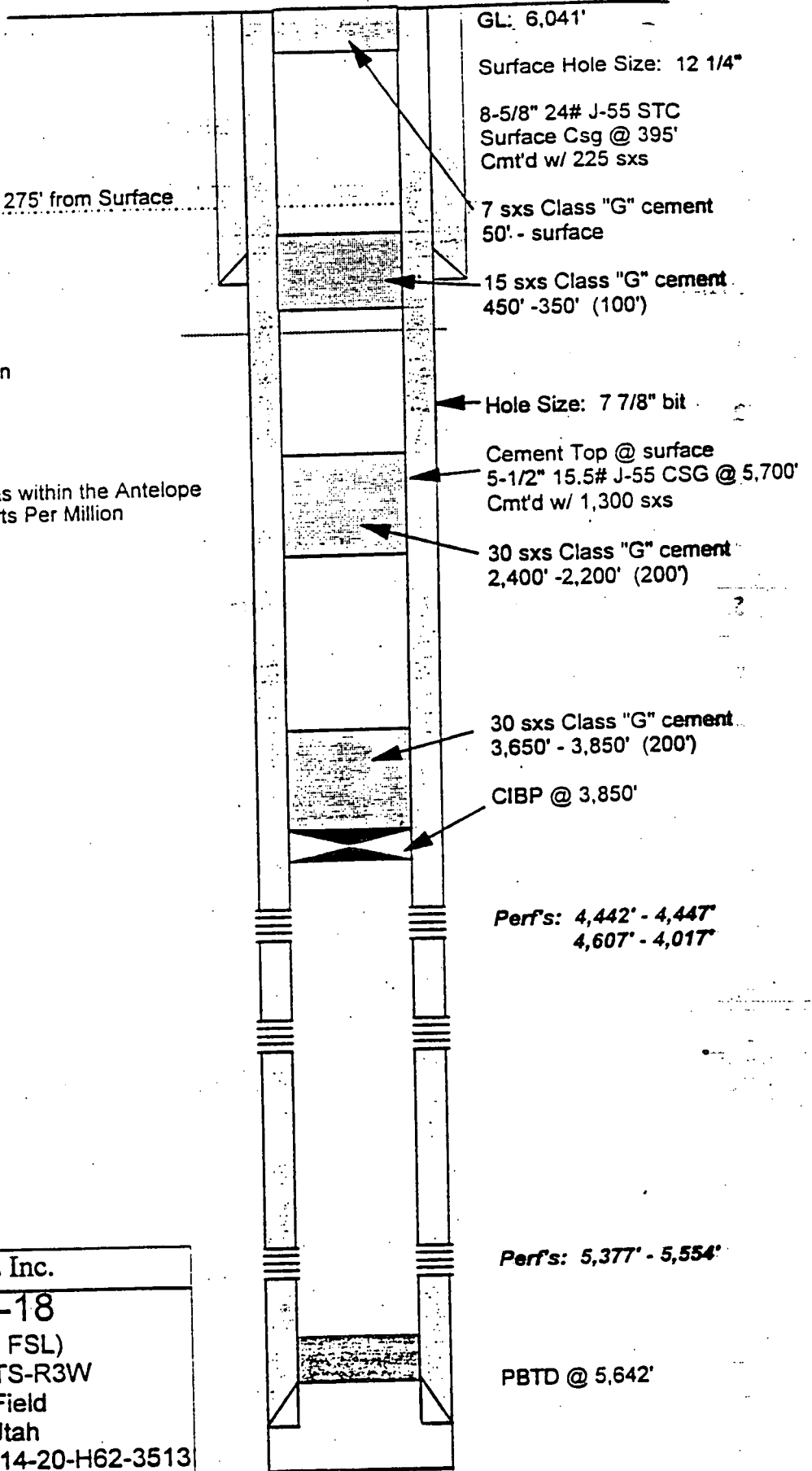
No USDW found in Uinta Formation

Estimated Base USDW 275' from Surface
See Map Section E.

Top Green River Formation @ 1,502'

No USDW found in Green River Formation

Average Total Dissolved Solids in 21 wells within the Antelope
Creek Project Area equals 16,722.55 Parts Per Million
(See Exhibit 2 this section)



(Not to Scale)

Inland Resources Inc.

Ute Tribal 5-18

(667' FEL & 2,151' FSL)

NE SE Section 18-5TS-R3W

Antelope Creek Field

Duchesne Co, Utah

API #43-013-31180; Lease #14-20-H62-3513

FINAL STATEMENT OF BASIS

PETROGLYPH OPERATING COMPANY, INC.

ANTELOPE CREEK WATERFLOOD

DUCHESNE COUNTY, UTAH

EPA AREA PERMIT NO. UT2736-00000

CONTACT:

John Carson
U. S. Environmental Protection Agency
UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500
Denver, Colorado 80202-2466
Telephone: (303) 293-1435

Original Land Area

DESCRIPTION OF FACILITY AND BACKGROUND INFORMATION:

On March 1, 1994, Petroglyph Operating Company, Inc., made application for an area underground injection control (UIC) permit for the injection of water supplied by shallow water supply wells into multiple sands within the Green River Formation. This permit application is for the conversion of four (4) existing oil/gas wells to enhanced oil recovery wells so that Petroglyph may economically produce oil from the Antelope Creek Field. The total dissolved solids (TDS) content of the injection water from a current water supply well is 9,885 milligrams per liter (mg/l); additional water supply wells will be drilled as needed. Water analyses of produced water from twenty-one wells within the proposed waterflood area indicate the multiple sands of the Green River Formation to have TDS contents ranging from 10,106 to 25,708 mg/l, with an average TDS of 16,722 mg/l.

THIS AREA PERMIT ALSO PROVIDES FOR THE CONVERSION OF ADDITIONAL HYDROCARBON PRODUCING WELLS AND THE CONSTRUCTION OF NEW ENHANCED RECOVERY INJECTION WELLS.

The area covered by the application is the Antelope Creek Field with the boundaries defined as follows:

Township 5 South, Range 3 West, Duchesne County, Utah

Sections 2, 3, 4, 5, 6 (SE/4 of SE/4), 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32, and 33.

The Area of Review (AOR) is defined as that area subtended by a line drawn one-quarter (1/4) mile beyond and around the boundaries described above. The Sections in T5S-R3W listed above are within the boundaries of the Uintah-Ouray Indian Reservation.

The first wells to be converted from production wells to enhanced recovery injection wells in the Green River Formation are listed below:

<u>NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal #1-8	NW NW Section 8	UT2736-04201
Ute Tribal #5-8	SE NW Section 8	UT2736-04203
Ute Tribal #4-18	NW NE Section 18	UT2736-04202
Ute Tribal #5-18	NE SE Section 18	UT2736-04204

Petroglyph Operating has submitted all required information and data necessary for permit issuance in accordance with 40 CFR Parts 144, 146 and 147, and a draft permit has been prepared. The permit will be issued for the operating life of the waterflood, unless the permit is terminated for reasonable cause (40 CFR §144.39, §144.40 and §144.41). However, the permit will be reviewed every five years.

This Statement of Basis gives the derivation of the site-specific permit conditions and reasons for them. The referenced sections and conditions correspond to the sections and conditions in Area Permit UT2736-00000. The general permit conditions for which the content is mandatory and not subject to site-specific differences (based on 40 CFR Parts 144, 146 and 147), are not included in the discussion.

PART II, Section A WELL CONSTRUCTION REQUIREMENTS

Casing and Cementing

(Condition 1)

Casing and cementing details for the four initial wells to be converted to injection for the Antelope Creek Waterflood Project were submitted with the permit application. Well construction is as follows:

Ute Tribal #1-8

- (1) Surface casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 421 feet Kelly Bushing (KB). The cement used to secure the casing was circulated to the surface, isolating the casing from the wellbore.

- (2) Long string casing (5-1/2 inch) is set in a 7-7/8 inch diameter hole to a depth of 6,400 feet KB. The cement used to secure this casing extends from the casing shoe, up to a depth of 1,404 feet.

Ute Tribal #5-8

- (1) Surface casing (13-3/8 inch) is set in a 17-1/2 inch diameter hole to a depth of 34 feet KB. The cement used to secure the casing was circulated to surface, isolating the casing from the wellbore.
- (2) Intermediate casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 392 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.
- (3) Long string casing (5-1/2 inch) is set in a 7-7/8 inch diameter hole to a depth of 6,346 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.

Ute Tribal #4-18

- (1) Surface casing (13-3/8 inch) is set in a 17-1/2 inch diameter hole to a depth of 25 feet KB. The cement used to secure the casing was circulated to surface, isolating the casing from the wellbore.
- (2) Intermediate casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 400 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.
- (3) Long string casing (5-1/2 inch) is set in a 7-7/8 inch diameter hole to a depth of 5,110 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.

Ute Tribal #5-18

- (1) Surface casing (8-5/8 inch) is set in a 12-1/4 inch diameter hole to a depth of 395 feet KB. The cement used to secure the casing was circulated to the surface, isolating the casing from the wellbore.
- (2) Long string casing (5-1/2 inch) is set in a 7-7/8 inch diameter hole to a depth of 5,700 feet KB. The cement used to secure this casing extends from the casing shoe to the surface.

The Uinta Formation extends from the surface to an average depth of 1,410 feet. The base of the lowermost possible underground source of drinking water (USDW) containing total dissolved solids of less than 10,000 mg/l occurs in the Uinta Formation and is near ground surface in the northern part of the waterflood area, but descends to a depth of approximately 1,200 feet in the southern part of the area. The four wells initially to be converted are cemented to sufficient height behind surface and long string production casings to preclude any migration of injected fluids up hole into any USDW within the Uinta Formation. The source for this USDW information is formation water analyses submitted by the operator for twenty-two wells within the AOR, and information from Technical Publication No. 92 (1987), prepared jointly by the USGS and the Utah Division of Oil, Gas, and Mining.

The injection intervals in the initial four wells are between the depths of 3,974 and 5,554 feet, some 2,500 feet below the top of the Green River Formation which is at an average depth of 1,410 feet. The injection zones are composed of lenticular calcareous sandstones interbedded with low permeable carbonates and calcareous shales. The lenticular sandstones vary in thickness from 1 to 30 feet. The overall confining strata above the injection zones consist of impermeable Green River calcareous shales and continuous beds of microcrystalline dolomite. All injection zones in these four wells as well as in future conversion wells will be confined within a 2,100 foot section between the Green River "A" Lime marker bed and the top of the Basal Carbonate in the lower part of the formation.

Requirements for Additional Wells

(Condition 2)

The permittee may convert and/or construct other wells to enhanced recovery injection wells within the Area Permit boundary, provided that additional wells meet all conditions as set forth in this permit. Additional wells must have surface casing cemented to the surface; and cement behind the long string casing, below the injection zone and up to 300 feet above the uppermost perforations. The permittee shall also conduct appropriate downhole logging, and other tests, during the conversion and/or construction of any new enhanced recovery injection wells. For newly constructed wells, the permittee shall run a cement bond log (CBL)-variable density log (VDL)-gamma ray log (GR) from total depth (TD) to the base of the surface casing shoe. Additional logs to be run are a Dual Induction log, Density-Neutron and/or Sonic log. Along with this suite of logs, or any other pertinent logs, the permittee shall include appropriate narrative interpretations by a log analyst.

The permittee will determine the injection zone fluid pore pressure (static bottom-hole pressure) and will obtain an accurate injection zone fracture pressure, breakdown pressure,

and instantaneous shut-in pressure (ISIP) through injectivity testing of the injection zones. This testing may be performed prior to full operation, or within three months after injection operations are initiated. Also, an estimate of injection zone permeability and water quality of the formation fluid will be determined.

* Any proposal for additional well conversions or new well construction must first be approved by the Director, and no action may be taken by the permittee until written authorization is received from the Director.

Tubing and Packer Specifications

(Condition 3)

The injection wells will be equipped with 2-7/8 inch tubing and packers set above the injection zones. The permittee is required to set packers at a distance of no more than 100 feet above the uppermost perforations in each well. This information (Appendix A) submitted by the applicant is incorporated into the permit and shall be binding on the permittee.

Monitoring Devices

(Condition 4)

For the purpose of taking tubing and tubing/long string casing annulus pressure measurements, the EPA is requiring that the permittee install 1/2-inch fittings (for stab type pressure receptacle) with cut-off valves at the wellhead on the tubing, and on the tubing/casing annulus.

EPA is further requiring the permittee to install a sampling tap on the line to each injection well and a flow meter that will be used to measure rate and cumulative volume of injected fluid.

Formation Testing and Logging

(Condition 6)

- a. Testing. Upon conversion and/or construction of each well, the permittee is required to determine the injection zone fluid pore pressure (static bottom hole pressure) prior to commencement of disposal operations.
- b. Step-Rate Test. A step-rate injectivity test shall be performed on at least one (1) of the initial proposed injection wells to determine the formation parting pressure and the results submitted to the EPA. This testing may be performed prior to full operation, or within three (3) months after injection operations are initiated.
- c. Logging. The permittee shall conduct appropriate down-hole logging prior to the setting of production casing on all newly constructed wells. The following suite of logs are required; Dual Induction (DIL) and

Compensated Density/Neutron (CNL-FDC). A Cement Bond/Gamma Ray log shall be run after casing is set. All logging results shall be accompanied by a brief written narrative (prepared by a knowledgeable log analyst) identifying the USDWs, formation tops, confining layers, injection zones and top of cement.

PART II, Section B CORRECTIVE ACTION

The applicant submitted the required 1/4-mile area of review (AOR) information with the permit application. Within the AOR there are forty-nine (49) production wells, five (5) plugged and abandoned wells, and one (1) permitted injection well (EPA Permit UT2497-03100). The long string casing/wellbore annulus in 23 of the production wells, and in the permitted injection well, is cemented from the casing shoe to ground surface; the remaining 26 production wells are cemented a minimum of 500 feet above the top of the Green River perforated intervals. The casing and cement in all of the production wells and the currently permitted well will prevent the migration of injected fluids up hole into any of the shallower Uinta Formation USDWs. The five plugged and abandoned wells within the AOR were plugged in such a manner that will also prevent any endangerment to USDWs. Therefore, the permittee is not required to take any corrective action prior to the issuance of this permit.

PART II, Section C WELL OPERATION

Prior to Commencing Injection (Initial Wells) Condition 1)

Injection operations shall not commence until the permittee has complied with the following:

- a. Conversion is complete and permittee has submitted a Well Rework Record (EPA Form 7520-12).
- b. Determined the injection zone fluid pore pressure.
- c. The well successfully passes a mechanical integrity pressure test (MIT) according to the guidelines discussed in the permit, and is witnessed by a representative of the EPA.

Prior to Commencing Injection (Additional Wells) (Condition 2)

Enhanced recovery injection through any additional wells (converted and/or newly constructed) may not commence until the permittee has complied with both (a) and (b) below:

- a. All required formation testing and logging has been performed in accordance with Part II, A. 6., conversion

and/or construction is complete and the permittee has submitted the appropriate forms. These forms are EPA Form 7520-12 for conversion wells and EPA Form 7520-10 for newly constructed wells.

- b. The permittee demonstrates that a given well(s) has mechanical integrity in accordance with 40 CFR §146.8 and Part II, C. 3.(a), and the permittee has received notice from the Director that such a demonstration is satisfactory. The permittee shall notify EPA two weeks prior to conducting this test so that an authorized representative may be present to witness the test.

Mechanical Integrity (Subsequent to Initial Demonstration)

(Condition 3)

A tubing/casing annulus pressure test must be repeated at least once every five (5) years to demonstrate continued tubing, packer, and casing integrity.

Injection Interval

(Condition 4)

Fluid injection shall be limited to the gross interval within the Green River Formation between the approximate depths of 3,750 feet to 5,850 feet.

Injection Pressure Limitation

(Condition 5)

The permittee shall limit the maximum surface injection pressure to 1900 psig. Permit provisions have been made that allow the Director to increase or decrease the injection pressure, based on the results of a step-rate test (SRT) showing that the new requested pressure will not exceed the formation breakdown pressure. The Director will specify in writing, to the permittee, any increase or decrease to the injection pressure based upon the test results and/or other parameters reflecting actual injection operations.

The permittee submitted fracture treatment data from the four initial wells to be converted. An average fracture gradient of 0.97 psig/ft for Green River sands was obtained from these treatments; however, a more conservative gradient of 0.88 psig/ft will be used to determine a maximum injection pressure. This latter gradient was obtained from a step-rate test of the Green River in the Ute Tribal #2-4 permitted well. The well depth (d) used in the calculation is the average depth of the shallowest injection intervals in the initial four wells. The Maximum surface injection pressure (Pm) was calculated as follows:

$$P_m = [0.88 - 0.433 (S_g)] d$$

Where: Pm = Maximum surface injection pressure
at wellhead
d = 4310 feet (average depth, top
perforations in four initial wells).
0.433 = hydrostatic gradient of water
Sg = Specific gravity of injected fluid

$$P_m = [0.88 - 0.433(1.00)] 4310$$

$$P_m = 1926 \text{ psig}$$

Injection Volume Limitation

(Condition 6)

The daily injection rate will not be limited, but in no case shall the injection pressure exceed that listed in Part II, Section C, (Condition 5), above. There shall be no limit on the cumulative number of barrels of water that may be injected into the Green River Formation.

Injection Fluid Limitation

(Condition 7)

Injection fluids are limited to those which are identified in 40 CFR §144.6(b)(2), as fluids used for enhanced recovery of oil and/or natural gas. The permittee shall provide a listing of the sources of injected fluids on an annual basis as required by the permit.

PART II, Section D MONITORING, RECORD KEEPING, AND REPORTING OF RESULTS

Injection Well Monitoring Program

(Condition 1)

The permittee is required to monitor water quality of the injected fluids on an annual basis. A water sample of injected fluids shall be analyzed for total dissolved solids, pH, specific conductivity, and specific gravity. Any time there is a change in the source of injection fluid, a new water quality analysis is also required. This analysis is required to be reported to EPA annually. In addition, weekly observations of flow rate, cumulative volume, injection pressure, and annulus pressure will be made. At least one observation each for flow rate, injection pressure, annulus pressure, and cumulative volume will be recorded on a monthly basis. This record is required to be reported to EPA annually.

The permittee shall maintain copies (or originals) of all pertinent records at the office of Petroglyph Operating Company, Inc., 6209 North Highway 61, Hutchinson, Kansas 67502.

PART II, Section E PLUGGING AND ABANDONMENT

Plugging and Abandonment Plan

(Condition 2)

The plugging and abandonment plans submitted by the applicant, are incorporated into the permit, (Appendix C of the Permit) and shall be binding on the permittee. These plans have been reviewed and are consistent with UIC requirements.

Plugging of Additional Wells

(Condition 5)

The permittee may plug any additional injection wells within the permitted area, converted or constructed under Part II Section A, provided that the respective plugging and abandonment plans meet all conditions as set forth in the permit. Plugging and abandonment shall not occur until the EPA has reviewed and approved the plan(s).

PART II, Section F FINANCIAL RESPONSIBILITY

Demonstration of Financial Responsibility

(Condition 1)

Petroglyph Operating Company, Inc. has chosen to demonstrate financial responsibility by a Surety Bond and Standby Trust Agreement, both of which have been evaluated and approved.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
<http://www.epa.gov/region08>

OCT 31 2014

Ref: 8P-W-UIC

CONCURRENCE

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Beau Judge, Engineer
Petroglyph Energy, Inc.
860 Broadway Avenue, Suite 500
Boise, Idaho 83707

RE: Underground Injection Control (UIC)
Minor Area Permit Modification
EPA UIC Area Permit UT20736-00000
Antelope Creek Waterflood
Duchesne County, Utah

Dear Mr. Judge:

The U.S. Environmental Protection Agency (EPA), Region 8, received Petroglyph Energy, Inc. (Petroglyph) September 15, 2014, letter with enclosures requesting a Minor Area Permit Modification to the recalculation of Maximum Allowable Injection Pressures (MAIP) in the Antelope Creek Waterflood.

ORIGINAL: Antelope Creek Waterflood Area Permit, Part II, Condition 5, Injection Pressure Limitation, states that all Area Permit "Maximum Surface Injection Pressures" (MSIP) shall be calculated using the following calculation:

$$P_m = [F_g - (0.433 \times S_g)] D$$

P_m - maximum authorized injection pressure

F_g = 0.88: All calculations shall use this conservative fracture gradient

S_g = 1.00: A constant Specific Gravity of injected fluids

D = 4310 feet (A constant, based on the average shallowest perforation in four wells).

Beau Judge
9/24/14 8P-W-UIC

Linda M. Bowling
8P-W-UIC
10/28/2014

SMJ
8P-W-UIC
10/28/14

MODIFIED: By this Minor Area Permit Modification EPA authorizes Petroglyph to recalculate all MAIPs, past and future, using the following formula :

$$\text{MAIP} = [(\text{ISIP}/\text{D} + 0.433) \times \text{SG} - (0.433 \times \text{SG})] \times \text{D}$$

FG = Fracture gradient as determined by individual well Step-Rate Test
and equals $(\text{ISIP}/\text{D} + 0.433) \times \text{SG}$

SG = Specific gravity of injectate

ISIP = Initial Shut-in Pressure

D = Depth to shallowest well perforation.

If you have questions regarding the above action, please contact Bruce Suchomel of my staff by calling (303) 312-6001 or (800) 227-8917, extension 312-6001.

Sincerely,

Callie A. Videtich
Acting Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

cc:

Uintah & Ouray Business Committee
Gordon Howell Jr., Chairman
Ronald Wopsock, Vice-Chairman
Tony Small, Councilman
Phillip Chimburas, Councilman
Stewart Pike, Councilman
Bruce Ignacio, Councilman

Lelilah Duncan, Acting Superintendent
BIA - Uintah & Ouray Indian Agency

Minnie Grant
Air Quality Coordinator
Ute Indian Tribe

Manual Myore
Director of Energy & Minerals Dept.
Ute Indian Tribe

John Rogers
Associate Director
Utah Division of Oil, Gas, and Mining

Fluid Minerals Engineering Office
BLM - Vernal Office

Robin Hansen
Fluid Minerals Engineering Office
BLM - Vernal Office

bcc:

8P-TA, Randy Brown

8ENF-W, Kimberly Pardue-Welch



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
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OCT 31 2014

Ref: 8P-W-UIC

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RETURN RECEIPT REQUESTED

Mr. Beau Judge, Engineer
Petroglyph Energy, Inc.
860 Broadway Avenue, Suite 500
Boise, Idaho 83707

RE: Underground Injection Control (UIC)
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ORIGINAL: Antelope Creek Waterflood Area Permit, Part II, Condition 5, Injection Pressure Limitation, states that all Area Permit "Maximum Surface Injection Pressures" (MSIP) shall be calculated using the following calculation:

$$P_m = [F_g - (0.433 \times S_g)] D$$

P_m - maximum authorized injection pressure

$F_g = 0.88$: All calculations shall use this conservative fracture gradient

$S_g = 1.00$: A constant Specific Gravity of injected fluids

$D = 4310$ feet (A constant, based on the average shallowest perforation in four wells).

MODIFIED: By this Minor Area Permit Modification EPA authorizes Petroglyph to recalculate all MAIPs, past and future, using the following formula :

$$\text{MAIP} = [(\text{ISIP}/D + 0.433) \times \text{SG} - (0.433 \times \text{SG})] \times D$$

FG = Fracture gradient as determined by individual well Step-Rate Test
and equals $(\text{ISIP}/D + 0.433) \times \text{SG}$

SG = Specific gravity of injectate


ISIP = Initial Shut-in Pressure

D = Depth to shallowest well perforation.

If you have questions regarding the above action, please contact Bruce Suchomel of my staff by calling (303) 312-6001 or (800) 227-8917, extension 312-6001.

Sincerely,



 Callie A. Videtich
Acting Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

cc:

Uintah & Ouray Business Committee
Gordon Howell Jr., Chairman
Ronald Wopsock, Vice-Chairman
Tony Small, Councilman
Phillip Chimburas, Councilman
Stewart Pike, Councilman
Bruce Ignacio, Councilman

Lelilah Duncan, Acting Superintendent
BIA - Uintah & Ouray Indian Agency

Minnie Grant
Air Quality Coordinator
Ute Indian Tribe

Manual Myore
Director of Energy & Minerals Dept.
Ute Indian Tribe

John Rogers
Associate Director
Utah Division of Oil, Gas, and Mining

Fluid Minerals Engineering Office
BLM - Vernal Office

Robin Hansen
Fluid Minerals Engineering Office
BLM - Vernal Office

NOTE TO FILE:

PETROGLYPH OPERATING CO.

is a new UIC operator.

**There are no known violations in
the operator compliance history.**

Daniela Thig

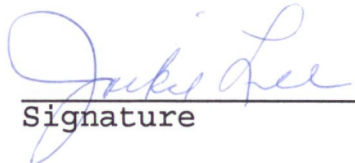
4-4-94
DATE

NOTE to FILE

PETROGLYPH OPERATING CO.,INC.

is an existing **UIC** operator

There are no known violations in
the operator's compliance history.


Signature

12-23-97
Date

UT 2736-04420
Permit Number

h:\exist-op.uic

<Rev. 7/1/97 mecr>

5/1/98 CW 3288C (Area Permit Major Modification)

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Ralph L. Nelms
Manager of Engineering Development
Petroglyph Energy, Inc.
6209 North Highway 61
Hutchinson, KS 67502

4a. Article Number
P 213 403 789

4b. Service Type

<input type="checkbox"/> Registered	<input checked="" type="checkbox"/> Certified
<input type="checkbox"/> Express Mail	<input type="checkbox"/> Insured
<input type="checkbox"/> Return Receipt for Merchandise	<input type="checkbox"/> COD

7. Date of Delivery
MAY 7 1998

5. Received By: (Print Name)
X Kathy Turner

6. Signature: (Addressee or Agent)
X Kathy Turner

8. Addressee's Address (Only if requested and fee is paid)
need LG
MAY 11 1998

PS Form 3811, December 1994

Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

P 213 403 789

5/1/98 CW 3288C

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	
Mr. Ralph L. Nelms	
Manager of Engineering Development	
Petroglyph Energy, Inc.	
6209 North Highway 61	
Hutchinson, KS 67502	
Postage	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, April 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

APR 30 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Ralph L. Nelms
Manager of Engineering Development
Petroglyph Energy, Inc.
6209 North Highway 61
Hutchinson, KS 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
FINAL - Area Permit Major
Modification, Expansion of Antelope
Creek Waterflood Unit
EPA Area Permit #UT2736-00000,
Antelope Creek Field
Duchesne County, Utah

Dear Mr. Nelms:

Transmitted herewith is an Underground Injection Control (UIC) **Final Area Permit Major Modification expanding your Antelope Creek Field Waterflood Unit (UT2736-00000)**, Duchesne County, Utah. A Final Statement of Basis Addenda is also enclosed which discusses the development of the Final Area Permit Major Modification in significant detail.

The public comment period for the Major Area Permit Modification action ended April 13, 1998. There were no comments from the public, surface landowner, or from your office; therefore, the final permit action is effective upon the date of issuance.

Following conversion(s), but prior to commencement of injection operations, Petroglyph must meet the requirements outlined in **Part II, Section C. 1.**, "Prior to Commencing injection (Initial wells)."

It is Petroglyph's responsibility to be familiar with, and to comply with, all conditions contained in this permit.

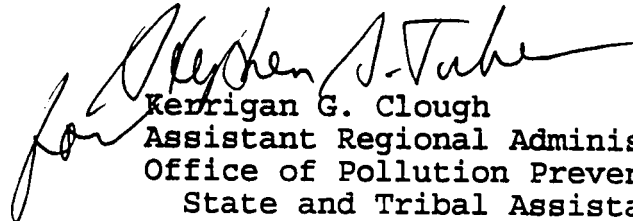
Final
Maj M



Printed on Recycled

Please direct all correspondence, forms, and reports to **Chuck Williams** at the above letterhead address (MAIL CODE 8P2-W-GW) or telephone Mr Williams at (303) 312-6625 if you should have future questions.

Sincerely,


Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosures:

Final Statement of Basis Addenda
Final Area Permit Major Modification

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

AREA

Date: 4/13/98

FINAL MAJOR PERMIT MODIFICATION -- ROUTING SLIP

TO	INIT	DATE
1. ORIGINATOR <i>Chuck Williams</i>	8P2-W-GW <i>CW.</i>	4/13/98
2. TECHNICAL REVIEW - <input type="checkbox"/> DJ <input checked="" type="checkbox"/> PO	8P2-W-GW <i>X</i>	4/28/98
3. PROOF READ - LAURA C.	8P2-W-GW <i>LC</i>	4/28/98
4.	8.	
5. DAVE HOGLE - CONCUR	8P2-W-GW <i>DMH</i>	4/28/98
6. STEVE TUBER - CONCUR	8P2-W <i>ST</i>	4/29
7. KERRY CLOUGH - SIGNATURE	8P2 <i>ST/PO</i>	4/29
8. ORIGINATOR - COPIES <i>Chuck W.</i>	8P2-W-GW <i>CW.</i>	4/30
9. JACKIE LEE - TRACKING	8P2-W-GW <i>✓</i>	4/30
10. LAURA C. - MAIL	<i>LC</i>	5/1/98

WELL NAME: *Antelope Creek Waterflood Unit*

PERMIT NUMBER: *UT 2736-00000*

APPLICANT: *Petroglyph*

Contents of Final Permit Package

Left Side:

UIC Permit Action SOP
Final Permit Considerations
UIC Program Tracking
Operating Conditions Checklist
Prior to Injection Checklist
Cover Letter (Concurrence)
Cover Letter (Reading File)
Public Comment Letters

Right Side:

Cover Letter (Sign)
Final Statement of Basis
Final Permit (SIGN)
~~Aquifer Exemption (Sign)~~
~~Response to Comments~~

COMMENTS: *Enlarge - Antelope Creek Waterflood Unit*

Originator: *Chuck Williams*

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Ralph L. Nelms
Manager of Engineering Development
Petroglyph Energy, Inc.
6209 North Highway 61
Hutchinson, KS 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
FINAL - Area Permit Major
Modification, Expansion of Antelope
Creek Waterflood Unit
EPA Area Permit #UT2736-00000,
Antelope Creek Field
Duchesne County, Utah

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It is Petroglyph's responsibility to be familiar with, and to comply with, all conditions contained in this permit.

CEW
8P2-W-GW
4/28/98
above
8P2-W-GW
4/28/98

8P2-W-GW
4/28/98 LG
mailed
5/1/98 LG

Hale w/c
8P2-W-GW
4/28/98

P2-W
4/30/98

*changes
made -
CEW*

Please direct all correspondence, forms, and reports to **Chuck Williams** at the above letterhead address (MAIL CODE 8P2-W-GW) or telephone Mr Williams at (303) 312-6625 if you should have future questions.

Sincerely,

Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosures:

Final Statement of Basis Addenda
Final Area Permit Major Modification

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

FCD: April 13, 1998. Chuck W., F:\DATA\WP\PETROGLF\MAJMOD-2.736

3/9/98 CW 3242C

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

MAR 9 1998

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. Ralph L. Nelms
Manager of Engineering Development
Petroglyph Energy, Inc.
6209 North Highway 61
Hutchinson, KS 67502

4a. Article Number

P 213 403 747

4b. Service Type

- | | |
|---|---|
| <input type="checkbox"/> Registered | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Insured |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD |

7. Date of Delivery

MAR 11 1998

5. Received By: (Print Name)

Kristie Brown

6. Signature: (Addressee or Agent)

X

Kristie Brown

8. Addressee's Address (Only if requested and fee is paid)

(enc'd to)
 MAR 16 1998

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

P 213 403 747

3/9/98 CW 3242C

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	
Mr. Ralph L. Nelms	
Manager of Engineering Development	
Petroglyph Energy, Inc.	
6209 North Highway 61	
Hutchinson, KS 67502	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, April 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

MAR 4 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Ralph L. Nelms
Manager of Engineering Development
Petroglyph Energy, Inc.
6209 North Highway 61
Hutchinson, KS 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Draft - Area Permit Major
Modification, Expansion of Antelope
Creek Waterflood Unit
EPA Area Permit #UT2736-00000,
Antelope Creek Field
Duchesne County, Utah

Dear Mr. Nelms:

Transmitted herewith is an Underground Injection Control (UIC) **Draft Area Permit Major Modification expanding your Antelope Creek Field Waterflood Unit (UT2736-00000)**, Duchesne County, Utah. A Draft Statement of Basis Addenda is enclosed which discusses the development of the Draft Area Permit Major Modification in significant detail.

A Public Notice, a copy of which is enclosed, is to be published in the VERNAL EXPRESS, Vernal, Utah in the near future. This notice advises the general public of their opportunity to comment. The public comment period on the proposed permit action will run for thirty (30) days from the date of publication. You may call Ms. Jo Taylor at (303) 312-6152 to obtain the exact deadline for public comments. Please note that this time period is also your opportunity to carefully inspect these documents and to comment on those you may disagree with, and/or to be sure that you are aware of and agree with all of the permit modifications stated therein.

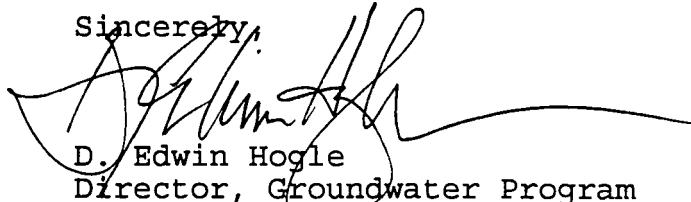
Draft
Maj M



Printed on Recycled Paper

Please direct your comments and any related correspondence to the attention of **Chuck Williams** at **Mail Code 8P2-W-GW**. You may direct any questions regarding the enclosed information by calling **Mr. Williams** at **(303) 312-6625**. Thank you for your continued cooperation.

Sincerely,


D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention,
State and Tribal Assistance

Enclosures: Public Notice
 Draft Statement of Basis Addenda
 Draft Area Permit Major Modification

cc: Mr. Ronald Wopsock, Chairman
 Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
 Ute Indian Tribe

Norman Cambridge
 BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
 BLM - Vernal District Office

Mr. Gilbert Hunt
 State of Utah Natural Resources
 Division of Oil, Gas & Mining

Date: 2/26/98

DRAFT MAJOR PERMIT MODIFICATION -- ROUTING SLIP

TO	INIT	DATE
1. PERMIT WRITER <u>Chuck Williams</u> 8P2-W-GW	<u>CEW.</u>	<u>2/26</u>
2. TECHNICAL REVIEW: <input checked="" type="checkbox"/> <u>Sm.</u> <input type="checkbox"/> DJ <input type="checkbox"/> 8P2-W-GW	<u>WJM</u>	<u>2/26</u>
3. LAURA CLUTTS - PROOF READ 8P2-W-GW	<u>LG</u>	<u>3/2/98</u>
4. TRIBAL ASSISTANCE - CONCURRENCE <u>Appl. 3/3/98</u> 8P2-TA	<u>DA</u>	<u>3/3/98</u>
5. DAVE HOGLE - SIGNATURE 8P2-W-GW	<u>DH</u>	<u>3/4/98</u>
6. PERMIT WRITER - MAKE COPIES <u>Chuck W.</u> 8P2-W-GW	<u>CEW.</u>	<u>3/4/98</u>
7. JO TAYLOR - PUBLIC NOTICE 8P2-W-GW	<u>JT</u>	<u>3/6/98</u>
8. JACKIE LEE - TRACKING 8P2-W-GW	<u>JL</u>	<u>3-9-98</u>
9. LAURA CLUTTS - MAIL COPIES 8P2-W-GW	<u>LG</u>	<u>3-9-98</u>
10. PERMIT WRITER - FILE 8P2-W-GW	<u>CEW.</u>	<u>3/11/98</u>

WELL NAME: 4 Wells Ute Tribal #33-14D3 #33-08D3 #33-10D3 #33-16D3

AREA PERMIT NUMBER: UT 2736-00000

OPERATOR: Petroglyph Op. Co., Inc.

Contents of Draft Major Permit Modification Package:

Left Side:

UIC Major Modification SOP
Draft Major Mod Consid.
UIC Permit Tracking
SPMS Tracking
Cover Letter (Concurrence)
Cover Letter (Reading File)

Right Side:

Cover Letter (Sign)
Public Notice
Addendum to Statement of Basis
Draft Modification (Do Not Sign)

COMMENTS: _____

Originator: Chuck Williams

MAR 4 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Ralph L. Nelms
Manager of Engineering Development
Petroglyph Energy, Inc.
6209 North Highway 61
Hutchinson, KS 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Draft - Area Permit Major
Modification, Expansion of Antelope
Creek Waterflood Unit
EPA Area Permit #UT2736-00000,
Antelope Creek Field
Duchesne County, Utah

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CW.
SP2-W-GW
2/26/98

SP2-W-GW
W. Montclair
2/28/98

SP2-FA
Deb Miller
2/23/98

Hugh
SP2-W-GW
2/14/98

3/4/98 LC
mailed 3/4/98 LC

Please direct your comments and any related correspondence to the attention of Chuck Williams at Mail Code 8P2-W-GW. You may direct any questions regarding the enclosed information by calling Mr. Williams at (303) 312-6625. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention,
State and Tribal Assistance

Enclosures: Public Notice
Draft Statement of Basis Addenda
Draft Area Permit Major Modification

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

FCD: February 23, 1998. Chuck W., F:\DATA\WP\PETROGLF\MAJMOD-2.736

RECORD OF COMMUNICATION

☒ PHONE CALL ☐ DISCUSSION ☐ FIELD TRIP ☐ CONFERENCE
☐ OTHER (SPECIFY)

(Record of item checked above)

TO: Angie Bane
w/Petroglyph (316) 665-8500

FROM: J. Carson

DATE 8/31/94

TIME 9:00 AM

SUBJECT: Authorization to Inject letter for 3 wells in Area Permit.

SUMMARY OF COMMUNICATION

Area Permit #UT 2736-00000

Called Angie Bane concerning Authorization to Inject letter dated Aug. 30, 1994.

Letter incorrectly listed one of the wells;
Well # 1-18 should be # 1-8.

The three wells authorized to inject are:

Ute Tribal #1-8 UT 2736-04201

08-04

Ute Tribal #4-18 UT 2736-04202

Ute Tribal #5-18 UT 2736-04204

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES

TO: Angie Bane (FAX) ; Petroglyph well files.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

AUG 30 1994

Ref: 8WM-DW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

R. A. Christensen
President
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Antelope Creek Field Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Christensen: *#1-8*

Thank you for the recently submitted Well Rework Records and mechanical integrity test results for the Ute Tribal enhanced recovery wells #1-18, #4-18, and #5-18 in the Antelope Creek Field. Petroglyph has complied with all pertinent conditions [Part II, C. 1.] of the area permit which includes these three wells, and may begin injection operations.

Please be aware of the monitoring, recordkeeping, and reporting obligations described in Part II, Section D of the permit. If you have any questions on this action, you may call Chuck Williams at (303) 293-1550. Also, please direct all correspondence to the attention of Chuck Williams at Mail Code 8WM-DW.

Sincerely,

for *John A. Carson*
Thomas J. Pike
Chief

UIC Implementation Section



Printed on Recycled Paper



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

OCT 3 1994

UT 20736 - 04203 (#5-8)
Authorization to Inject - Final

Ref: 8WM-DW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

R. A. Christensen
President
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Antelope Creek Field Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Christensen:

Thank you for the recently submitted Well Rework Record and mechanical integrity test results for the Ute Tribal enhanced recovery well #5-8 (EPA Permit No. UT2736-04203) in the Antelope Creek Field. Petroglyph has complied with all pertinent conditions [Part II, C. 1.] of the area permit which includes this well, and may begin injection operations.

Please be aware of the monitoring, recordkeeping, and reporting obligations described in Part II, Section D of the permit. If you have any questions on this action, you may call Chuck Williams at (303) 293-1550. Also, please direct all correspondence to the attention of Chuck Williams at Mail Code 8WM-DW.

Sincerely,

Thomas J. Pike
Chief
UIC Implementation Section



Printed on Recycled Paper



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

MAY - 4 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

UT 20736 - 04420
Add Well to Area Permit

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of December 20, 1997, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under the Modified EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #33-14D3	SE/SW Section 33 T 4 S - R 3 W Duchesne County, UT	#UT2736-04420

This additional well is within the boundary of the recently modified area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made under the provisions of 40 CFR § 144.33 (c) as long as all terms and conditions of the permit are met. Unless specifically mentioned in this conversion, all terms and conditions of the modification to the permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and found satisfactory, therefore, no corrective action is required.
- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2369 psig. Permit provision have been made that allow the operator to request an increase or decrease in the injection pressure.



Printed on Recycled Paper

The calculations for the fracture gradient (0.98 psi/ft.) was estimated from the average of the two offset permitted injection wells: Ute Tribal #33-08D3 and Ute Tribal #33-16D3. The theoretical maximum allowable surface injection pressure is calculated as shown below:

$$P_{max} = [F_g - 0.433 (S_g)] d$$

Where: P_{max} = Maximum surface injection pressure at wellhead

d = 4330' shallowest perforations after conversion

S_g = Specific gravity of injected water

$$P_{max} = [0.98 - .433 (1.00)] 4330$$

$$P_{max} = 2369 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.98 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (P_{max}) for this well will be 2369 psig.

- (3) The plugging and abandonment plan and schematic, submitted by your office, has been reviewed, and approved.

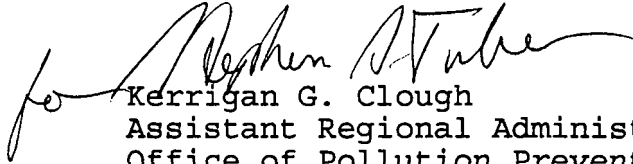
Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received **separate written authorization to inject by the Environmental Protection Agency**. In summary, these requirements for your newly permitted injection well are:

- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) The pore pressure has been determined.
- (3) The well has successfully completed and passed a **mechanical integrity test (MIT)**; EPA form enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW**. Thank you for your continued cooperation.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kerrigan G. Clough".

Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosure: EPA Form

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

Mechanical Integrity Test

Casing or Annulus Pressure Test for Well UT2736-04420

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466
This form was printed on 04/28/1998.

EPA Witness: _____ Date ____/____/____

Test conducted by: _____

Others present: _____

UTE TRIBAL #33-14D3	2R UC as of ____/____/____
ANTELOPE CREEK	SESW 33 04S 03W
Petroglyph Operating Company, Inc.,	Hutchinson, KS Op ID PTG01
Last MIT: No record ____/____/____	
Max Allowed Press psig	1997 Max Reported Press 0 psig

Is this a regularly scheduled test? ☐ Yes ☐ No
 Initial test for permit? ☐ Yes ☐ No
 Test after well rework? ☐ Yes ☐ No

Well injecting during test? ☐ NO ☐ YES _____ BPD

Initial casing/tubing annulus pressure _____ psig
 Does the annulus pressure build back up? ☐ Yes ☐ No

TUBING PRESSURE			
Initial	psig	psig	psig
End of Test	psig	psig	psig
CASING/TUBING ANNULUS PRESSURE			
Time	Test #1	Test #2	Test #3
0 min	psig	psig	psig
5			
10			
15 min			
20			
25			
30 min			
Result (circle)	Pass Fail	Pass Fail	Pass Fail



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

JAN 20 1999

UT 20736-04420
Authorization to Inject Final

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mrs. Deanna Bell, Operations Coordinator
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #33-14D3 (UT04420)
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mrs. Bell:

Thank you for submitting information pertaining to Ute Tribal #33-14D3 to the Environmental Protection Agency (EPA) Region VIII Groundwater Program. Requirements of UIC Permit UT2736-04420 Part II Sections (C) (2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic,
2. Successfully run Mechanical Integrity Test (MIT) with pressure chart,
3. Injection zone fluid pore pressure survey.

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C) (2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #33-14D3 under the conditions of UIC Permit UT2736-04420. The Director has determined that the maximum surface injection pressure for the Ute Tribal #33-14D3 shall not exceed 2369 psig.



Printed on Recycled Paper

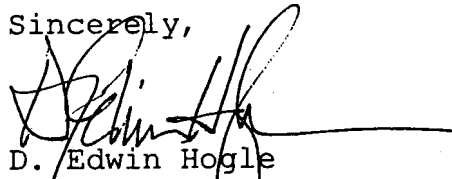
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. John Carson, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Carson at the address listed below, referencing EPA WELL ID: UT04420 on all reports and correspondence.

Mr. John Carson,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 500
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Carson at 303.312.6203.

Sincerely,



D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman
Utah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Utah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office

5/8/98 CW 3300C (UTE TRIBAL # 33-1023)

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

3. Article Addressed to:
Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P.O. Box 1839
Hutchinson, KS 67504-1839

4a. Article Number
P 213 403 801

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
MAY 11 1998

5. Received By: (Print Name)
Kathy Turner

6. Signature: (Addressee or Agent)
X Kathy Turner

8. Addressee's Address (Only if requested and fee is paid)
MAY 14 1998

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

P 213 403 801

5/8/98 CW 3300C

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to
Ms. Kathy Turner

Street & Number
Geology/Petroleum Engineering Technician

Post Office, State, & ZIP Code
Petroglyph Operating Company, Inc.

Postage
P.O. Box 1839

Hutchinson, KS 67504-1839

Certified Fee

Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, & Addressee's Address

TOTAL Postage & Fees \$

Postmark or Date

PS Form 3800, April 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500

DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

MAY 8 1998

UT 20736 - 04421
Add Well to Area Permit

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of December 22, 1997, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under the Modified EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #33-10D3	NW/SE Section 33 T 4 S - R 3 W Duchesne County, UT	#UT2736-04421

This additional well is within the boundary of the recently modified area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by modification under the authority of 40 CFR § 144.33 (c) and according to the terms and conditions of that permit. Unless specifically mentioned in this Modification, all terms and conditions of the modified permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and found satisfactory, therefore, no corrective action is required.
- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2448 psig. Permit provision have been made that allow the operator to request an increase or decrease in the injection pressure.



Printed on Recycled Paper

The fracture gradient (0.98 psi/ft.), in calculating Pmax was estimated from the average of the two offset permitted injection wells: Ute Tribal #33-08D3 and Ute Tribal #33-16D3. This Fg is acceptable to the Environmental Protection Agency (EPA), and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

$$P_{max} = [F_g - 0.433 (S_g)] d$$

Where: Pmax = Maximum surface injection pressure at wellhead

d = 4476' shallowest perforations after conversion

Sg = Specific gravity of injected water

$$P_{max} = [0.98 - .433 (1.00)] 4476$$

$$P_{max} = 2448 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.98 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (Pmax) for this well will be 2448 psig.

- (3) The plugging and abandonment plan and schematic, submitted by your office, has been reviewed, and approved.

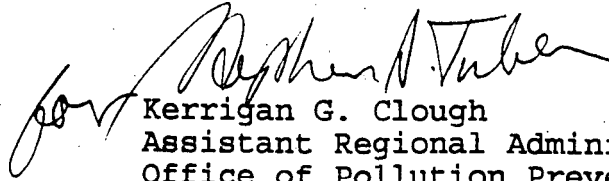
Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received separate written authorization to inject by the Environmental Protection Agency. In summary, these requirements for your newly permitted injection well are:

- (1) All conversion is complete and the permittee has submitted a completed Well Rework Record (EPA Form 7520-12).
- (2) The pore pressure has been determined.
- (3) The well has successfully completed and passed a mechanical integrity test (MIT); EPA form enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW**. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosure: EPA Form

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

CONCURRENCE COPY

Ref: 8P2-W-GW

MAY 8 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: **UNDERGROUND INJECTION CONTROL (UIC)**
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of December 22, 1997, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under the **Modified EPA Area Permit #UT2736-00000** is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #33-10D3	NW/SE Section 33 T 4 S - R 3 W Duchesne County, UT	#UT2736-04421

This additional well is within the boundary of the recently modified area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by modification under the authority of 40 CFR § 144.33 (c) and according to the terms and conditions of that permit. Unless specifically mentioned in this Modification, all terms and conditions of the modified permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

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CEW
8P2-W-GW
5/4/98

8P2-W-GW
5/4/98
5/9/98
8P2-W-GW
5/4/98 LG
mailed
5/8/98 LG

8P2-W
Turner
5/5/98
Hick
5/5/98

The fracture gradient (0.98 psi/ft.), in calculating Pmax was estimated from the average of the two offset permitted injection wells: Ute Tribal #33-08D3 and Ute Tribal #33-16D3. This Fg is acceptable to the Environmental Protection Agency (EPA), and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

$$P_{max} = [Fg - 0.433 (Sg)] d$$

Where: Pmax = Maximum surface injection pressure at wellhead

d = 4476' shallowest perforations after conversion

Sg = Specific gravity of injected water

$$P_{max} = [0.98 - .433 (1.00)] 4476$$

$$P_{max} = 2448 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.98 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (Pmax) for this well will be 2448 psig.

- (3) The plugging and abandonment plan and schematic, submitted by your office, has been reviewed, and approved.

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Sincerely,

Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosure: EPA Form

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

FCD: May 5, 1998. Chuck W., F:\DATA\WP\PETROGLF\MNRMD-33.10D



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

AUG 24 1998

UT20736 - 04421
Authorization to Inject
Final

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

#47
Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #33-10D3 (UT04421)
Antelope Creek Waterflood
Modified EPA Area Permit
UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced modified area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #33-10D3 (UT2736-04421) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Modified Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax)** is **limited to 2248 psig**, as modified May 8, 1998.



Printed on Recycled Paper

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (MAIL CODE ENF-T) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,



D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance

#21 cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

#20 Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

#11 Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

#94 Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

#12 Mr. Jerry Kenczka
BLM - Vernal District Office



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

CONCURRENCE COPY

AUG 24 1998

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #33-10D3 (UT04421)
Antelope Creek Waterflood
Modified EPA Area Permit
UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

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CEW
8P-W-GW
8/18/98

CPW
8P-W-GW
8/21/98

CPW
8/24/98
CPW

Hale
8/24/98



Printed on Recycled Paper

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (MAIL CODE ENF-T) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office

FCD: August 17, 1998, Chuck W., F:\DATA\WP\PETROGLF\AUT-IN30-10D3



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

AUG 24 1998

Ref:8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

#47
Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #33-10D3 (UT04421)
Antelope Creek Waterflood
Modified EPA Area Permit
UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced modified area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #33-10D3 (UT2736-04421) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Modified Antelope Creek Waterflood Area Permit.

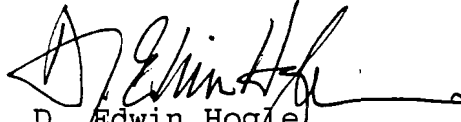
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Printed on Recycled Paper

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (MAIL CODE ENF-T) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,



D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance

#21 cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

#20 Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

#11 Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

#94 Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

#12 Mr. Jerry Kenczka
BLM - Vernal District Office



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

MAY 4 1998

UT 20736 - 04422
Add Well to Area Permit

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: **UNDERGROUND INJECTION CONTROL (UIC)**
CONVERSION OF ADDITIONAL WELL to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of December 22, 1997, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under the **Modified EPA Area Permit #UT2736-00000** is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #33-08D3	SE/NE Section 33 T 4 S - R 3 W Duchesne County, UT	#UT2736-04422

This additional well is within the boundary of the recently modified area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by modification under the authority of 40 CFR § 144.33 (c) and according to the terms and conditions of that permit. Unless specifically mentioned in this Modification, all terms and conditions of the modified permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and found satisfactory, therefore, no corrective action is required.
- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2376 psig. Permit provision have been made that allow the operator to request an increase or decrease in the injection pressure.



The permittee submitted a list of nine (9) individual zones, within the Ute Tribal #33-08D3, which were individually fraced and established an average fracture gradient (Fg) of 0.98 psi/ft. which was derived from instantaneous shut-in pressures (ISIP's) from each zone. This Fg is acceptable to the Environmental Protection Agency (EPA), and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

$$P_{max} = [Fg - 0.433 (Sg)] d$$

Where: Pmax = Maximum surface injection pressure at wellhead

d = 4343' shallowest perforations after conversion

Sg = Specific gravity of injected water

$$P_{max} = [0.98 - .433 (1.00)] 4343$$

$$P_{max} = 2376 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.98 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (Pmax) for this well will be 2376 psig.

- (3) The plugging and abandonment plan and schematic, submitted by your office, has been reviewed, and approved.

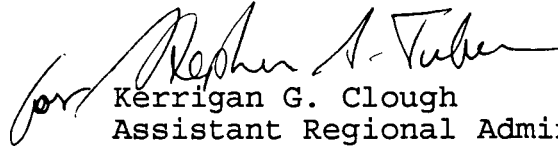
Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received separate written authorization to inject by the Environmental Protection Agency. In summary, these requirements for your newly permitted injection well are:

- (1) All conversion is complete and the permittee has submitted a completed Well Rework Record (EPA Form 7520-12).
- (2) The pore pressure has been determined.
- (3) The well has successfully completed and passed a mechanical integrity test (MIT); EPA form enclosed.

All other provisions and conditions of the permit remain as originally issued and/or recently modified.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW**. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosure: EPA Form

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

Mechanical Integrity Test
Casing or Annulus Pressure Test for Well UT2736-04422

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466
This form was printed on 04/28/1998.

EPA Witness: _____ Date ____/____/____

Test conducted by: _____

Others present: _____

UTE TRIBAL #33-08D3	2R UC as of ____/____/____
ANTELOPE CREEK	SENE 33 04S 03W
Petroglyph Operating Company, Inc.,	Hutchinson, KS Op ID PTG01
Last MIT: No record ____/____/____	
Max Allowed Press psig	1997 Max Reported Press 0 psig

Is this a regularly scheduled test? ☐ Yes ☐ No
Initial test for permit? ☐ Yes ☐ No
Test after well rework? ☐ Yes ☐ No

Well injecting during test? ☐ NO ☐ YES _____ BPD

Initial casing/tubing annulus pressure _____ psig

Does the annulus pressure build back up? ☐ Yes ☐ No

TUBING PRESSURE			
Initial	psig	psig	psig
End of Test	psig	psig	psig
CASING/TUBING ANNULUS PRESSURE			
Time	Test #1	Test #2	Test #3
0 min	psig	psig	psig
5			
10			
15 min			
20			
25			
30 min			
Result (circle)	Pass Fail	Pass Fail	Pass Fail



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

FEB 2, 1999

UT 20736 - 04422
Authorization to Inject
Final

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mrs. Deanna Bell, Operations Coordinator
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #33-08D3 (UT04422)
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mrs. Bell

Thank you for submitting information pertaining to Ute Tribal #33-08D3 to the Environmental Protection Agency (EPA) Region VIII Groundwater Program. Requirements of UIC Permit UT2736-04422 Part II Sections (C) (2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic,
2. Successfully run Mechanical Integrity Test (MIT) with pressure chart,
3. Injection zone fluid pore pressure survey.
4. Compensated Neutron Log (CNL)

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C) (2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #33-08D3 under the conditions of UIC Permit UT2736-04422. The Director has determined that the maximum surface injection pressure for the Ute Tribal #33-08D3 shall not exceed 2376 psig.



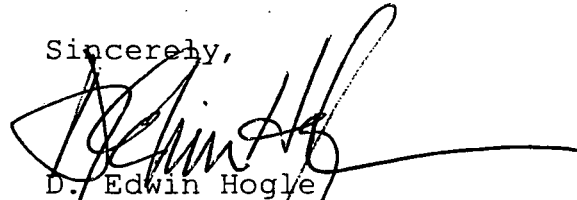
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. John Carson, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Carson at the address listed below, referencing EPA WELL ID: UT04422 on all reports and correspondence.

Mr. John Carson,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 500
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Carson at 303.312.6203.

Sincerely,



D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

MAY 4 1998

Ref: 8P2-W-GW

UT 20736 - 04423
Add Well to Area Permit

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: **UNDERGROUND INJECTION CONTROL (UIC)**
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of December 23, 1997, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under the Modified EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #33-16D3	SE/Se Section 33 T 4 S - R 3 W Duchesne County, UT	#UT2736-04423

This additional well is within the boundary of the recently modified area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by modification under the authority of 40 CFR § 144.33 (c) and according to the terms and conditions of that permit. Unless specifically mentioned in this Permit Modification, all terms and conditions of the modified permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and found satisfactory, therefore, no corrective action is required.
- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2512 psig. Permit provision have been made that allow the operator to request an increase or decrease in the injection pressure.



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The calculations for the fracture gradient was estimated from instantaneous shut-in pressures (ISIP's) observed during fracturing treatments performed on seven (7) individually fraced zones within the Ute Tribal #33-16D3 well which established an average fracture gradient (Fg) of 0.98 psi/ft. This Fg is acceptable to the Environmental Protection Agency (EPA) and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

$$P_{max} = [F_g - 0.433 (S_g)] d$$

Where: P_{max} = Maximum surface injection pressure at wellhead

d = 4592' shallowest perforations after conversion

S_g = Specific gravity of injected water

$$P_{max} = [0.98 - .433 (1.00)] 4592$$

$$P_{max} = 2512 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.98 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (P_{max}) for this well will be 2512 psig.

- (3) The **plugging and abandonment plan and schematic**, submitted by your office, has been reviewed, and approved.

Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received **separate written authorization to inject by the Environmental Protection Agency**. In summary, these requirements for your newly permitted injection well are:

- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) The **pore pressure has been determined**.
- (3) The well has successfully completed and passed a **mechanical integrity test (MIT)**; EPA form enclosed.

All other provisions and conditions of the permit remain as originally issued and/or recently modified.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW**. Thank you for your continued cooperation.

Sincerely,

for Stephen J. Tuben

Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosure: EPA Form

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

Mechanical Integrity Test

Casing or Annulus Pressure Test for Well UT2736-04423

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466
This form was printed on 04/28/1998.

EPA Witness: _____ Date ____/____/____

Test conducted by: _____

Others present: _____

UTE TRIBAL #33-16 D3	2R UC as of ____/____/____
ANTELOPE CREEK	SESE 33 04S 03W
Petroglyph Operating Company, Inc.,	Hutchinson, KS Op ID PTG01
Last MIT: No record ____/____/____	
Max Allowed Press psig	1997 Max Reported Press 0 psig

Is this a regularly scheduled test? ☐ Yes ☐ No
 Initial test for permit? ☐ Yes ☐ No
 Test after well rework? ☐ Yes ☐ No

Well injecting during test? ☐ NO ☐ YES _____ BPD

Initial casing/tubing annulus pressure _____ psig
 Does the annulus pressure build back up? ☐ Yes ☐ No

TUBING PRESSURE			
Initial	psig	psig	psig
End of Test	psig	psig	psig
CASING/TUBING ANNULUS PRESSURE			
Time	Test #1	Test #2	Test #3
0 min	psig	psig	psig
5			
10			
15 min			
20			
25			
30 min			
Result (circle)	Pass Fail	Pass Fail	Pass Fail



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

UT 2736 - 02/423
FEB 2, 1999 *Authorization to Inject Final*

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mrs. Deanna Bell, Operations Coordinator
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P.O. Box 607
Roosevelt, UT 84066

Re: AUTHORIZATION TO COMMENCE INJECTION
Ute Tribal #33-16D3 (UT04423)
EPA AREA PERMIT UT2736-00000
Duchesne County, Utah

Dear Mrs. Bell

Thank you for submitting information pertaining to Ute Tribal #33-16D3 to the Environmental Protection Agency (EPA) Region VIII Groundwater Program. Requirements of UIC Permit UT2736-04423 Part II Sections (C)(2) "Prior To Commencing Injection" required submittal of the following information:

1. Well Rework Record (EPA Form 7520-12) with after conversion well schematic,
2. Successfully run Mechanical Integrity Test (MIT) with pressure chart,
3. Injection zone fluid pore pressure survey.
4. Compensated Neutron Log (CNL)

All required information has been submitted, and has been reviewed and approved by the EPA. Petroglyph has complied with all pertinent conditions of UIC Area Permit UT2736-00000 Part II Section (C)(2). Therefore, effective upon your receipt of this letter, Administrative approval hereby is granted for injection into the Ute Tribal #33-16D3 under the conditions of UIC Permit UT2736-04423. The Director has determined that the maximum surface injection pressure for the Ute Tribal #33-16D3 shall not exceed 2512 psig.



Printed on Recycled Paper

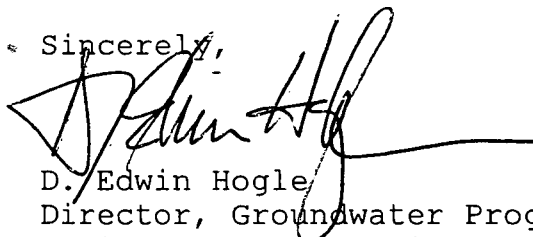
Please be reminded that it is the responsibility of the permittee to be aware of, and to comply with, all conditions of the permit. Effective upon receipt of this letter, EPA administration of this well is transferred to Mr. John Carson, Compliance Officer in the Office of Enforcement, Compliance, and Environmental Justice Technical Enforcement Program, who is your point of contact for routine compliance matters and reports.

Please send all reporting forms and other required correspondence to Mr. Carson at the address listed below, referencing EPA WELL ID: UT04423 on all reports and correspondence.

Mr. John Carson,
Technical Enforcement Program, Mail Code 8ENF-T
U.S. Environmental Protection Agency
999 18th Street, Suite 500
Denver, Colorado, USA, 80202-2466

If you have any questions concerning this authorization or the permit, please contact Mr. Dan Jackson of my staff at 303.312.6155 or Mr. Carson at 303.312.6203.

Sincerely,



D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office

Is your RETURN ADDRESS completed on the reverse side?

SENDER: cew 06/21/96 2878C

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: UT2736--00000

Ms. Angela R. Ely
Administrative Operations Mgr.
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

4a. Article Number

P 380 388 205

4b. Service Type

- ☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

6-24-96

5. Received By: (Print Name)

APRIL MENZIES

6. Signature: (Addressee or Agent)

X April Menzies

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

NL

cjo
Domestic Return Receipt

Thank you for using Return Receipt Service.

P 380 388 205

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided. cew 2878C

Do not use for International Mail (See reverse)

Sent to

Ms. Angela R. Ely
Administrative Operations Mgr.
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

Certified Fee

Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, & Addressee's Address

TOTAL Postage & Fees

\$

UIC Permit Minor Modification
Conv. of Additional Wells (5)
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

PS Form 3800, April 1995



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

JUN 19 1996

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Angela R. Ely
Administrative Operations Manager
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: UIC Permit Minor Modification
Conversion of Additional Wells (5)
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Ely:

Your letter of April 3, 1996, requesting that the following five (5) wells be converted to Class II enhanced oil recovery wells and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit UT2736-00000, is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal 04-01	NE NE Section 4	UT2736-04322
Ute Tribal 05-08	SE NE Section 5	UT2736-04324
Ute Tribal 29-08A	SE NE Section 29	UT2736-04325
Ute Tribal 05-16	SE SE Section 5	UT2736-04327
Ute Tribal 04-05	SW NW Section 4	UT2736-04328

These additional wells are within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by minor permit modification according to the terms and conditions of that permit. Unless specifically mentioned in the Minor Permit Modification, all terms and conditions of the original permit will apply to the construction, operation, monitoring, and plugging and abandonment of these additional injection wells. The proposed well location, well schematic, conversion procedures, and revised plugging and abandonment plans and schematics submitted by your office have been reviewed and approved as follows:

- (1) The construction of these wells have been reviewed and found satisfactory as submitted, therefore, no corrective action is required.



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- (2) **Maximum injection pressure (Pmax) for these wells are a follows:**

$$P_{max} = [F_g - 0.433 (S_g)] d$$

Where: P_{max} = Maximum surface injection pressure at wellhead
 d = 4283' shallowest perforations of the five (5) wells
 S_g = Specific gravity of injected water

$$P_{max} = [0.88 - .433 (1.00)] 4283$$

$$P_{max} = 1915 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture pressure other than 1915 psig applies to the disposal zones, of the newly converted wells, the maximum allowable wellhead injection pressure (**Pmax**) for the these wells will be 1915 psig.

- (3) **The plugging and abandonment plans and schematics, submitted by your office, have been reviewed and approved subject to the following changes:**
- (a) Prior to, or in conjunction with the emplacement of the surface plug (plug #3 in the primary plan of the permit) in the production casing, the production casing is to perforated 2', w/4 spf, at a point 50' below the surface casing shoe and cement squeeze the perfs to 50' above the shoe. Pull out of hole (POOH) leaving a 100' cement plug inside the production casing.
 - (b) The production/surface casing annulus will also be cemented from surface to a depth of 50'. A similar plug (50' to surface) will be left inside of the production casing (plug #4 in the primary plan of the permit).

Prior to commencing injection into the above five (5) wells, permittee must fulfill permit condition Part II, C. 2. and have received written authorization to inject by the EPA Director. In summary, these requirements for your newly permitted injection wells are:

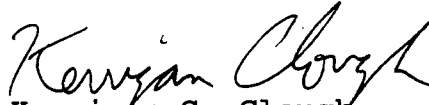
- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) **The pore pressure has been determined.**

- (3) The well has successfully completed and passed a **mechanical integrity test (MIT)**, guidance enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW** or telephone Mr. Williams at (303) 312-6625. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosures: Schematics - Conversion
 MIT Guidance and EPA Forms
 Well Rework Record EPA Form 7520-12

cc w/Enclosures: Mr. Ferron Secakuku
 Energy & Mineral Resource Dep't.
 Ute Indian Tribe

 Mr. Luke Duncan, Chairman
 Uintah & Ouray Business Committee
 Northern Ute Tribe

 Mr. Norman Cambridge
 Uintah & Ouray Agency
 BIA

 Mr. Gil Hunt
 State of Utah Natural Resources
 Division of Oil, Gas, and Mining

 Mr. Jerry Kenczka
 BLM - Vernal District Office

JUN 19 1996

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Angela R. Ely
 Administrative Operations Manager
 Petroglyph Operating Company, Inc.
 6209 North Highway 61
 Hutchinson, Kansas 67502

RE: **UIC Permit Minor Modification**
Conversion of Additional Wells (5)
 Antelope Creek Waterflood
 EPA Area Permit UT2736-00000
 Duchesne County, Utah

Dear Ms. Ely:

Your letter of April 3, 1996, requesting that the following five (5) wells be converted to Class II enhanced oil recovery wells and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit UT2736-00000, is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA PERMIT NO.</u>
Ute Tribal 04-01	NE NE Section 4	UT2736-04322
Ute Tribal 05-08	SE NE Section 5	UT2736-04324
Ute Tribal 29-08A	SE NE Section 29	UT2736-04325
Ute Tribal 05-16	SE SE Section 5	UT2736-04327
Ute Tribal 04-05	SW NW Section 4	UT2736-04328

These additional wells are within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by minor permit modification according to the terms and conditions of that permit. Unless specifically mentioned in the Minor Permit Modification, all terms and conditions of the original permit will apply to the construction, operation, monitoring, and plugging and abandonment of these additional injection wells. The proposed well location, well schematic, conversion procedures, and revised plugging and abandonment plans and schematics submitted by your office have been reviewed and approved as follows:

- (1) The **construction** of these wells have been reviewed and found satisfactory as submitted, therefore, no corrective action is required.

CEW
 8P2-W-GW
 6/13/96

carbon
 8P2-W-GW
 6/13/96
 WDM for DET/gle
 8P2-W-GW
 6/13/96

APC
 6/14/96
 6/14/96
 KC

- (2) **Maximum injection pressure (Pmax)** for these wells are as follows:

$$P_{max} = [F_g - 0.433 (S_g)] d$$

Where: P_{max} = Maximum surface injection pressure at wellhead
 d = 4283' shallowest perforations of the five (5) wells
 S_g = Specific gravity of injected water

$$P_{max} = [0.88 - .433 (1.00)] 4283$$

$$P_{max} = 1915 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture pressure other than 1915 psig applies to the disposal zones, of the newly converted wells, the maximum allowable wellhead injection pressure (**Pmax**) ~~for the~~ these wells will be 1915 psig.

- (3) The **plugging and abandonment plans and schematics**, submitted by your office, have been reviewed and approved subject to the following changes:
- (a) Prior to, or in conjunction with the emplacement of the surface plug (plug #3 in the primary plan of the permit) in the production casing, the production casing is to be perforated 2', w/4 spf, at a point 50' below the surface casing shoe and cement squeeze the perfs to 50' above the shoe. Pull out of hole (POOH) leaving a 100' cement plug inside the production casing.
 - (b) The production/surface casing annulus will also be cemented from surface to a depth of 50'. A similar plug (50' to surface) will be left inside of the production casing (plug #4 in the primary plan of the permit).

Prior to commencing injection into the above five (5) wells, permittee must fulfill permit condition Part II, C. 2. and have received **written authorization** to inject by the EPA Director. In summary, these requirements for your newly permitted injection wells are:

- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) The **pore pressure has been determined**.

- (3) The well has successfully completed and passed a **mechanical integrity test (MIT)**, guidance enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW** or telephone Mr. Williams at (303) 312-6625. Thank you for your continued cooperation.

Sincerely,

Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosures: Schematics - Conversion
MIT Guidance and EPA Forms
Well Rework Record EPA Form 7520-12

cc w/Enclosures: Mr. Ferron Secakuku
Energy & Mineral Resource Dep't.
Ute Indian Tribe
~~Mr. Luke Duncan, Chairman~~ *Ruby Atwine person*
Uintah & Ouray Business Committee
Northern Ute Tribe

Mr. Norman Cambridge
Uintah & Ouray Agency
BIA

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office

FCD: June 12, 1996, Chuck W., F:\DATA\WP\PETROGLF\MNRMOD-2.736



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

AUG 30 1994

Ref: 8WM-DW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

R. A. Christensen
President
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Antelope Creek Field Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Christensen: #1-8

Thank you for the recently submitted Well Rework Records and mechanical integrity test results for the Ute Tribal enhanced recovery wells #1-18, #4-18, and #5-18 in the Antelope Creek Field. Petroglyph has complied with all pertinent conditions [Part II, C. 1.] of the area permit which includes these three wells, and may begin injection operations.

Please be aware of the monitoring, recordkeeping, and reporting obligations described in Part II, Section D of the permit. If you have any questions on this action, you may call Chuck Williams at (303) 293-1550. Also, please direct all correspondence to the attention of Chuck Williams at Mail Code 8WM-DW.

Sincerely,

John A. Carson
for Thomas J. Pike
Chief

UIC Implementation Section



Printed on Recycled Paper

Is your RETURN ADDRESS completed on the reverse side?

SENDER: **CV** **08/30/94** **2186C**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: **UT2736-00000**

4a. Article Number
P 241 458 878

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
9-1-94

5. Signature (Addressee)
Carolyn Hamby

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

Mr. R. A. Christensen
President
Petroglyph Operating Co. Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

cjo

PS Form 3811, December 1991 U.S. GPO: 1993-352-714

DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service.

P 241 458 878



Receipt for Certified Mail

No Insurance Coverage Provided
 Do not use for International Mail
 (See Reverse) **CV** **2186C**

Sent to	
Mr. R. A. Christensen	
President	
Petroglyph Operating Co. Inc.	
6209 North Highway 61	
Hutchinson, Kansas 67502	
Postage	\$
Certified Fee	30
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	
Authorization to Inject	
Antelope Creek Field Water-	
flood	
EPA Area Permit #UT2736-00000	
Duchesne County, Utah	

PS Form 3800, June 1991

AUG 30 1994

Ref: 8WM-DW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

R. A. Christensen
President
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Antelope Creek Field Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Mr. Christensen:

Thank you for the recently submitted Well Rework Records and mechanical integrity test results for the Ute Tribal enhanced recovery wells #1-18, #4-18, and #5-18 in the Antelope Creek Field. Petroglyph has complied with all pertinent conditions [Part II, C. 1.] of the area permit which includes these three wells, and may begin injection operations.

Please be aware of the monitoring, recordkeeping, and reporting obligations described in Part II, Section D of the permit. If you have any questions on this action, you may call Chuck Williams at (303) 293-1550. Also, please direct all correspondence to the attention of Chuck Williams at Mail Code 8WM-DW.

Sincerely,

Thomas J. Pike
Chief
UIC Implementation Section

FCD: August 26, 1994, car, jac, A:\PETROGP.AUT

8WM-DW
jac
8/26/94

7M

Date: 7/8/94

FINAL PERMIT -- ROUTING SLIP

TO			INITIALS	DATE
1.	ORIGINATOR	J. Carson 8WM-DW	Jac	7/8/94
2.	MARGARET REDDY - PROOF READ	8WM-DW	Go	7/8/94
3.	* CHUCK TINSLEY - PERMIT REVIEW	8WM-DW		
4.	* ORC	8RC		
5.	TOM PIKE - SECTION CHIEF	8WM-DW	St. H. Sp.	7/8/94
6.	MAX DODSON - DIV. DIRECTOR	8WM	me	7/12/94
7.	ORIGINATOR - COPIES	8WM-DW	CEW.	7/13/94
8.	DANIELA THIGPEN - TRACKING	8WM-DW	TH	7/13/94
9.	MARGARET REDDY - MAIL	8WM-DW		

WELL NAME: Area Permit - Antelope Creek Fld.
 PERMIT NUMBER: UT 2736-00000
 APPLICANT: Petroglyph Operating Company, Inc.

Contents of Final Permit Package

Left Side:

UIC Permit Action SOP
 Compliance History
 Final Permit Considerations
 UIC Program Tracking
 Operating Conditions Checklist
 Prior to Injection Checklist
 Cover Letter (Concurrence)
 Cover Letter (Reading File)
~~Public Comment Letters~~

Right Side:

✓ Cover Letter (Sign)
 ✓ Final Statement of Basis
 ✓ Final Permit (Sign)
~~Aquifer Exemption (Sign)~~
~~Response to Comments~~

COMMENTS: * No change from Draft
No Comments

Originator: J. Carson

* Delete from routing list if no changes were made to the Draft Permit

TELEFAX COVER SHEET

TO: NAME: Angie Bare MAIL CODE: _____

AGENCY/FIRM: Petroglyph PHONE # (316) 655-8500

CITY: Hutchinson STATE: Kansas

TELEFAX MACHINE NUMBER: (316) 665-8577
PLEASE INCLUDE AREA CODE

NUMBER OF PAGES (INCLUDING COVER SHEET) 2

FROM: NAME: John Carson PHONE (303) 293-1435

U.S. EPA REGION VIII MAIL CODE 8WM-DW
999 18TH STREET
SUITE 500 TELEFAX # (303) 293-1647
DENVER CO 80202-2466

REMARKS:

LOGGED BY: _____ SENT BY: _____

DATE SENT: _____ TIME SENT: _____

OPERATOR NOTES:

03/10/93 10:00 AM
009 81003 118 HILL
S-W-W-11-11

84:11111 109216 TIME STAMP SENT

94 AUG 31 AM 9:43

US EPA, 6PM-AS
1001 ST. SUITE 600
DENVER, CO. 80202-2403

RECORD OF COMMUNICATION

☒ PHONE CALL ☐ DISCUSSION ☐ FIELD TRIP ☐ CONFERENCE
☐ OTHER (SPECIFY)

(Record of item checked above)

TO: Angie Bane
w/Petroglyph (316) 665-8500

FROM: Jo Carson

DATE 8/31/94

TIME 9:00 AM

SUBJECT: Authorization to Inject letter for 3 wells in Area Permit.

SUMMARY OF COMMUNICATION

Area Permit #UT 2736-00000

Called Angie Bane concerning Authorization to Inject letter dated Aug. 30, 1994.

Letter incorrectly listed one of the wells:
well # 1-18 should be # 1-8.

The three wells authorized to inject are:

Ute Tribal #1-8 UT 2736-04201

Ute Tribal #4-18 UT 2736-04202

Ute Tribal #5-18 UT 2736-04204

CONCLUSIONS, ACTION TAKEN OR REQUIRED

INFORMATION COPIES

TO: Angie Bane (FAX) ; Petroglyph well files.

NOTE to FILE:

PETROGLYPH (PTG01)

is an existing UIC operator.

There are no known violations in
the operator compliance history.

Margaret Reddy
Signature

June 18, 1996
Date



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

AUG 29 1996

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Angela R. Ely
Administrative Operations Manager
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

UT 20736 - 04324
Authorization to Inject - Final

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #05-08 (UT04324)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Ely:

Thank you for the recently submitted information pertaining to the above-referenced area permit. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test on the Ute Tribal #05-08 (UT2736-04324) have been reviewed and approved. Petroglyph has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood area permit.

Please be advised that administrative approval has been granted for water injection into the above referenced well. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current maximum surface injection pressure (Pmax) is limited to 1915 psig, as modified by UIC Permit Minor Modification dated June 19, 1996.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson, will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Acting Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



Printed on Recycled Paper



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

MAR - 4 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #04-05 (UT04328)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #04-05 (UT2736-04328) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 1915 psig**, as modified by UIC Minor Permit Modification dated June 19, 1996.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

OCT 6 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #30-08 (UT04359)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

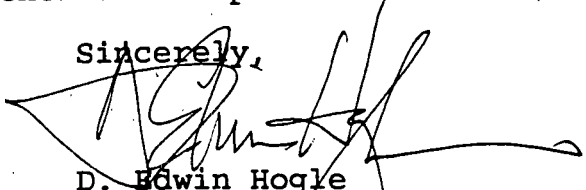
Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports showing average ISIP of 2201 psi, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #30-08 (UT2736-04359) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax)** is limited to 2201 psig, as modified by UIC Minor Permit Modification dated April 11, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,


D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

SEP 10 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #30-01 (UT04362)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports showing average ISIP of 2297 psi, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #30-01 (UT2736-04362) have been reviewed and approved. Petroglyph Operating Company, Inc., has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2497 psig**, as modified by UIC Minor Permit Modification dated April 18, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

AUG 13 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #21-11 (UT04365)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #21-11 (UT2736-04365) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax)** is **limited to 2196 psig**, as modified by UIC Minor Permit Modification dated April 29, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

JUN 27 1996

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Angela R. Ely
Administrative of Operations Manager
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #04-01
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Ely:

Thank you for the recently submitted information pertaining to the above-referenced area permit. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test on the Ute Tribal #04-01 (UT2736-04322) have been reviewed and approved. Petroglyph has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood area permit.

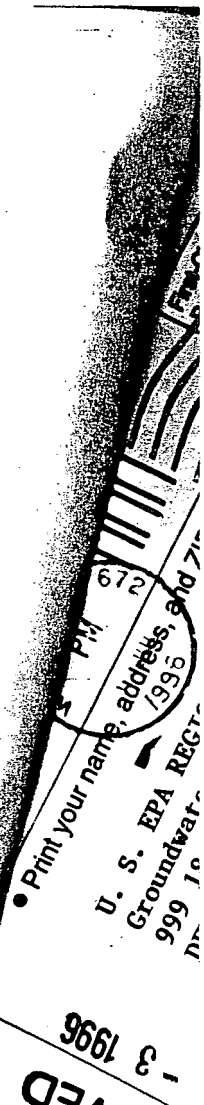
Pleased be advised that administrative approval has been granted for water injection into the above referenced well. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current maximum surface injection pressure (Pmax) is limited to 1915 psig, as modified by UIC Permit Minor Modification dated June 19, 1996.

Please direct all correspondence to the attention of Chuck Williams at the above letterhead (MAIL CODE 8P2-W-GW) or contact Mr. Williams at (303) 312-6625. Thank you for your continued cooperation.

Sincerely,

[Signature]
D. Edwin Hogle
Acting Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance

2. If you do not want this receipt postmarked, stick the gummed stub to the right of the return address of the article, date, detach, and retain the receipt, and mail the article.
3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article RETURN RECEIPT REQUESTED adjacent to the number.



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9661



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

JAN 20 1999

Ref:8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mrs. Deanna Bell, Operations Coordinator
Petroglyph Operating Company, Inc.
4116 West 3000 South Ioka Lane
P. O. Box 607
Roosevelt, UT 84066

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #18-05 (UT04472)
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Mrs. Bell:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record with after conversion well schematic, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #18-05 (UT2736-04472) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Modified Antelope Creek Waterflood Area Permit.

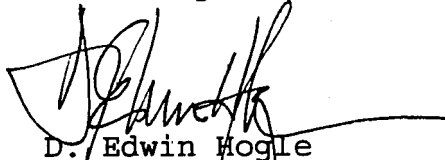
Please be advised that administrative approval is hereby granted, as of the date of this letter, for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2369 psig**, as modified by UIC Minor Area Permit Modification dated May 4, 1998.



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Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (MAIL CODE ENF-T) or contact Mr. Carson at 303.312.6203. Thank you for your continued cooperation.

Sincerely,



D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, - Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

NOV 13 1998

Ref:8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Judy Gates
Administrative Assistant
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #07-16 (UT04419)
Antelope Creek Waterflood
Modified EPA Area Permit
UT2736-00000
Duchesne County, Utah

Dear Ms. Gates:

Thank you for the recently submitted information pertaining to the above-referenced modified area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #07-16 (UT2736-04419) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Modified Antelope Creek Waterflood Area Permit.


Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax)** is limited to 2239 psig, as modified January 21, 1998.



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Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (MAIL CODE ENF-T) or contact Mr. Carson at 303.312.6203. Thank you for your continued cooperation.

Sincerely,



D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

JUL 21 1998

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Removal of Well from UIC Inventory
Ute Tribal 04-03
EPA Permit No. 2736-04349
Antelope Creek Field
Duchesne County, Utah

Dear Ms. Turner:

This letter is in response to your correspondence of July 6, 1998, in which you requested that the Antelope Creek Waterflood Ute Tribal 04-03 well be released from our Class II injection well inventory. This well was included in the UIC Area Permit #UT2736-00000 which was issued July 12, 1994.

In accordance with 40 CFR § 144.39 and 144.40 this well, which has not been converted to an injector, may be deleted from the Area Permit. UIC regulations require that the operator must submit production reports for six (6) consecutive months before a well may be removed from the UIC inventory. Petroglyph has satisfactorily fulfilled this requirement; therefore, the Ute Tribal 04-03 will be removed from our UIC inventory as Class II injection well and will no longer be subject to regulations under the UIC Program of the Environmental Protection Agency (EPA).

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Partnerships and
Regulatory Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

MAY 4 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: **UNDERGROUND INJECTION CONTROL (UIC)**
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of April 7, 1998, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under the Modified EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
<i>Ute Tribal #30-09</i>	NE/SE Section 30 T 5 S - R 3 W Duchesne County, UT	#UT2736-04451

This additional well is within the boundary of the recently modified area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by modification under the authority of 40 CFR § 144.33 (c) and according to the terms and conditions of that permit. Unless specifically mentioned in this Permit Modification, all terms and conditions of the modified permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and found satisfactory, therefore, no corrective action is required.
- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2152 psig. Permit provision have been made that allow the operator to request an increase or decrease in the injection pressure.



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The calculations for the fracture gradient was estimated from instantaneous shut-in pressures (ISIP's) observed during fracturing treatments performed on four (4) individually fraced zones within the Ute Tribal #30-09 well which established an average fracture gradient (Fg) of 0.93 psi/ft. This Fg is acceptable to the Environmental Protection Agency (EPA) and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

$$P_{max} = [F_g - 0.433 (S_g)] d$$

Where: Pmax = Maximum surface injection pressure at wellhead

d = 4300' shallowest perforations after conversion

Sg = Specific gravity of injected water

$$P_{max} = [0.93 - .433 (1.00)] 4300$$

$$P_{max} = 2152 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.93 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (Pmax) for this well will be 2152 psig.

- (3) The **plugging and abandonment plan and schematic**, submitted by your office, has been reviewed, and approved.

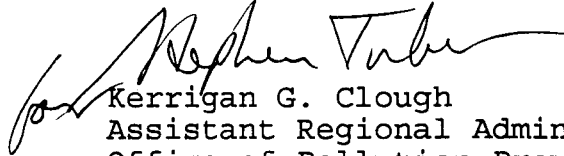
Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received **separate written authorization to inject by the Environmental Protection Agency**. In summary, these requirements for your newly permitted injection well are:

- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) The **pore pressure has been determined**.
- (3) The well has successfully completed and passed a **mechanical integrity test (MIT)**; EPA form enclosed.

All other provisions and conditions of the permit remain as originally issued and/or recently modified.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW**. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosure: EPA Form

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

Mechanical Integrity Test Casing/Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date ____/____/92 Time _____ am/pm

Test conducted by: _____

Others present: _____

Well name _____	EPA Number _____
Field name _____	
Location _____ qtr qtr; _____ Section; _____ Township; _____ Range	
Owner/Operator _____	

Time	Test #1	Test #2	Test #3
0 min	_____ psig	_____ psig	_____ psig
5	_____	_____	_____
10	_____	_____	_____
15	_____	_____	_____
20	_____	_____	_____
25	_____	_____	_____
30 min	_____	_____	_____
35	_____	_____	_____
40	_____	_____	_____
45	_____	_____	_____
50	_____	_____	_____
55	_____	_____	_____
60 min	_____	_____	_____

Tubing press _____ psig _____ psig _____ psig

Result (circle) Pass Fail Pass Fail Pass Fail

Signature of Witness: _____



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

APR 23 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #16-08 (UT04414)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #16-08 (UT2736-04414) have been reviewed and approved. Petroglyph Operating Company, Inc., has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax)** is **limited to 2035 psig**, as modified by UIC Minor Area Permit Modification dated January 21, 1998.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

APR - 6 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: **UIC MINOR PERMIT MODIFICATION**
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of March 20, 1998, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
<i>Ute Tribal #30-15</i>	SW/SE Section 30 T 5 S - R 3 W Duchesne County, UT	#UT2736-04446

This additional well is within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by minor permit modification according to the terms and conditions of that permit. Unless specifically mentioned in this Minor Permit Modification, all terms and conditions of the original permit will apply to the construction, operation, monitoring, and plugging and abandonment of this additional injection well. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and found satisfactory, therefore, no corrective action is required.



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- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2023 psig. Permit provision have been made that allow the operator to request an increase or decrease in the injection pressure.

The calculations for the fracture gradient was estimated from instantaneous shut-in pressures (ISIP) observed during fracturing treatments performed on five (5) individually fraced zones within the Ute Tribal #30-15 well. The lessor (two) of the five ISIP's was used to calculate the theoretical maximum allowable surface injection pressure as shown below:

$$P_{max} = [F_g - 0.433 (S_g)] d$$

Where: P_{max} = Maximum surface injection pressure at wellhead

d = 4496' shallowest perforations after conversion

S_g = Specific gravity of injected water

$$P_{max} = [0.883 - .433 (1.00)] 4496$$

$$P_{max} = 2023 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.883 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (**Pmax**) for this well will be 2023 psig.

- (3) The **plugging and abandonment plan and schematic**, submitted by your office, has been reviewed, and approved.

Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received **separate written authorization to inject by the Environmental Protection Agency**. In summary, these requirements for your newly permitted injection well are:

- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) The **pore pressure has been determined**.
- (3) The well has successfully completed and passed a **mechanical integrity test (MIT)**; EPA form enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P2-W-GW**. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Pollution Prevention,
State and Tribal Assistance

Enclosure: EPA Form

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

Mechanical Integrity Test Casing/Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program, UIC Implementation Section, 8WM-DW,
999 18th Street, Suite 500, Denver, CO 80202-2466

EPA Witness: _____ Date / / 9 Time am/pm
Test Conducted By: _____
Others Present: _____

Well Name _____			
Well Status for Test _____		Shut-In _____ Operating _____	
Field Name _____			
Location _____ qtr qtr; _____		Section; _____ Township; _____ Range _____	
Owner/Operator _____			

TUBING PRESSURE			
Initial	psig	psig	psig
End of Test	psig	psig	psig
CASING/TUBING ANNULUS PRESSURE			
Time	Test #1	Test #2	Test #3
0 min	psig	psig	psig
5			
10			
15			
20 min			
25			
30			
35			
40			
45 min			
Result(circle)	Pass Fail	Pass Fail	Pass Fail

Volume of fluid added to annulus prior to test _____

Volume of fluid bled back from annulus at end of test: _____

Workover since last pressure test? ☐ Yes ☐ No Operator Repr. does not know ☒ Date _____

Signature of Witness: _____

This is the front side of two sides.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

APR 3 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN REQUESTED

Ms. Kathy Turner
Petroglyph Energy, Inc.
6209 North Highway 61
Hutchinson, KS 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Approval to Commence Injection
EPA Permit No. UT2736-04415
Ute Tribal No. 07-09
NE SE Sec. 7 - T5S - R3W
Duchesne County, Utah

Dear Ms. Turner:

The Environmental Protection Agency (EPA) has reviewed, and approved, the EPA WELL REWORK RECORD (EPA Form No. 7520-12), the pore pressure, and the mechanical integrity test (March 25, 1998). As of the date of this letter, Petroglyph Energy, Inc. may commence fluid injection into the Ute Tribal No. 07-09.

If you have any questions in regard to the above action, please call Chuck Williams at (303) 312-6625.

All future correspondence involving compliance activities, as required in the Final Permit, will be submitted to the **ATTENTION: JOHN CARSON** at the letterhead address, but cite **MAIL CODE: 8ENF-T** very prominently. You may call Mr. Carson at (303) 312-6203.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention,
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

MAR 11 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #29-06 (UT04416)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #29-06 (UT2736-04416) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2015 psig**, as modified by UIC Minor Permit Modification dated January 6, 1998.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention,
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

MAR - 4 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #16-16 (UT04418)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

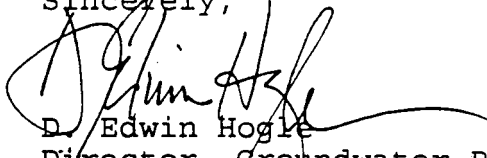
Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #16-16 (UT2736-04418) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2093 psig**, as modified by UIC Minor Permit Modification dated January 6, 1998.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,


D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

MAR - 4 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #28-05A (UT04410)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #28-05A (UT2736-04410) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2106 psig**, as modified by UIC Minor Permit Modification dated February 9, 1998.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

MAR 13 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #16-02 (UT04412)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #16-02 (UT2736-04412) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2481 psig**, as modified by UIC Minor Area Permit Modification dated January 6, 1998.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

JAN 21 1998

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #18-13 (UT04392)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports and the successfully run mechanical integrity test, with chart, on the Ute Tribal #18-13 (UT2736-04392) have been reviewed and approved. Petroglyph Operating Company, Inc., has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current maximum surface injection pressure (Pmax) is limited to 2490 psig.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (MAIL CODE ENF-T) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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11948

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

999 18TH Street, Suite 200
Denver, CO 80202-2466
Phone 800-227-8917
<http://www.epa.gov/region08>

OCT - 4 2006

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Martin W. Buys
Agent for Petroglyph Energy, Inc.
Buys & Associates, Inc.
300 E. Mineral Ave., Suite 10
Littleton, CO 80122

Re: Administratively Complete Applications

EPA UIC Area Permit UT20736-00000	
Ute Tribal 07-15	UT20736-07414
Ute Tribal 18-16	UT20736-07415
Ute Tribal 30-02	UT20736-07416
Ute Tribal 29-13	UT20736-07417
Ute Tribal 30-07	UT20736-07418

Dear Mr. Buys:

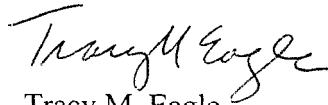
The purpose of this letter is to inform you that the injection well applications to add wells to the Antelope Creek Waterflood Project, EPA UIC Area Permit UT20736-00000, that you, on behalf of Petroglyph Energy, Inc., recently submitted to the U.S. Environmental Protection Agency (EPA) Region 8 Ground Water Program Office, for Underground Injection Control (UIC) Program authorization for the above referenced wells, have been administratively reviewed and are considered by the Director to be administratively complete pursuant to Code of Federal Regulations Title 40 Part 124 Section 3 (40 CFR § 124.3).

The UIC permit numbers listed above have been assigned to the corresponding injection well applications, and should be referenced when contacting the EPA regarding the well or application. Each application will be assigned to a UIC Permit Writer and processed in the order it was received.

The Permit Writer will contact you when he or she begins work on an application. The Permit Writer will evaluate the technical merits of the permit application, and will begin prepare an authorization decision document and corresponding statement of basis. Although these applications are considered to be administratively complete, if the Permit Writer requires additional information in order to clarify, modify, or supplement the technical or other information submitted with the permit application, the Permit Writer will contact you.

If you have questions regarding progress on these UIC well applications, please contact the assigned Permit Writer. If you have questions regarding this letter, please contact the assigned Permit Writer, or the UIC Team Leader at (303) 312-6155.

Sincerely,



Tracy M. Eagle
Director
Ground Water Program

Maxine Natchees, Acting Chairperson
Uintah & Ouray Business Committee
Ute Indian Tribe
P.O. Box 190
Fort Duchesne, UT 84026

BIA - Uintah & Ouray Indian Agency
P.O. Box 130
Fort Duchesne, UT 84026

Lynn Becker, Director
Energy and Minerals Department
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, UT 84026

Mike Guinn
Newfield Exploration Company
10530 South Country Road #33
Myton, UT 84052

S. Elaine Willie
Environmental Coordinator
Ute Indian Tribe
P.O. Box 460
Fort Duchesne, UT 84026

Gil Hunt
Associate Director
Utah Division of Oil, Gas, and Mining
1594 West North Temple - Suite 1220
Salt Lake City, UT 84114-5801

Fluid Minerals Engineering Department
BLM - Vernal District
170 South 500 East
Vernal, UT 84078

7005 0390 0000 4847 2856

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Sent To Martin W. Buys
Agent for Petroglyph Energy, Inc.
Buys & Associates, Inc.
Street, Apt. or PO Box 300 E. Mineral Ave. Ste 10
City, State Littleton, CO 80122

PS Form 3800, June 2002

See Reverse for Instructions



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

OCT 9 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #16-11 (UT04393)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports and the successfully run mechanical integrity test, with chart, on the Ute Tribal #16-11 (UT2736-04393) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2396 psig**, as modified by UIC Minor Permit Modification dated August 29, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

OCT 6 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #18-15 (UT04391)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports showing average ISIP of 2156 psi, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #18-15 (UT2736-04391) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (P_{max}) is limited to 2156 psig**, as modified by UIC Minor Permit Modification dated August 8, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

JUN 6 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #19-03 (UT04390)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports showing average ISIP of 1710 psi, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #19-03 (UT2736-04390) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current maximum surface injection pressure (Pmax) is limited to 2465 psig, as modified by UIC Minor Permit Modification dated August 21, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (MAIL CODE ENF-T) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

SEP 12 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #28-06 (UT04380)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports showing average ISIP of 1710 psi, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #28-06 (UT2736-04380) have been reviewed and approved. Petroglyph Operating Company, Inc, has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 1710 psig**, as modified by UIC Minor Permit Modification dated September, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

SEP 10 1997

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #28-03 (UT04389)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports showing average ISIP of 2336 psi, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #28-03 (UT2736-04389) have been reviewed and approved. Petroglyph Operating Company, Inc., has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax)** is limited to 2336 psig, as modified by UIC Minor Permit Modification dated August 8, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



Printed on Recycled Paper



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

SEP 10 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #21-06 (UT04388)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports showing average ISIP of 2183 psi, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #21-06 (UT2736-04388) have been reviewed and approved. Petroglyph Operating Company, Inc., has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax)** is limited to 2183 psig, as modified by UIC Minor Permit Modification dated August 8, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

SEP 10 1997

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #08-07 (UT04381)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, fracture treatment reports showing average ISIP of 2579 psi, and the successfully run mechanical integrity test, with chart, on the Ute Tribal #08-07 (UT2736-04381) have been reviewed and approved. Petroglyph Operating Company, Inc., has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2579 psig**, as modified by UIC Minor Permit Modification dated May 30, 1997.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead (**MAIL CODE ENF-T**) or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance



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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

JUL 21 1997

Ms. April Menzies
Geology/Petroleum
Engineering Technician
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

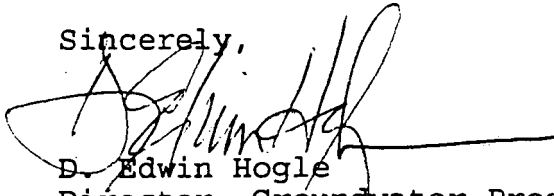
RE: UNDERGROUND INJECTION CONTROL (UIC)
Removal of Wells from UIC Inventory
Ute Tribal 18-03 EPA Permit
No. 2736-~~02459~~-04364 *Dmg. 7/21/97*
Ute Tribal 21-03 EPA Permit
No. 2736-04363
Antelope Creek Field
Duchesne County, Utah

Dear Ms. Menzies:

This letter is in response to your correspondence of July 9, 1997, in which you requested that the Antelope Creek Waterflood Ute Tribal 18-03 and Ute Tribal 21-03 wells be released from our Class II injection well inventory. Both of these wells were included in the UIC Area Permit #UT2736-00000 which was issued July 12, 1994.

In accordance with 40 CFR § 144.39 and 144.40 the two wells which were not converted to injectors may be deleted from the Area Permit. UIC regulations require that the operator must submit production reports for six (6) consecutive months before the wells are removed from the UIC inventory. Petroglyph has satisfactorily fulfilled this requirement; therefore, the Ute Tribal 18-03 and Ute Tribal 21-03 will be removed from our UIC inventory as Class II injection wells and will no longer be subject to regulations under the UIC Program of the Environmental Protection Agency (EPA).

Sincerely,


D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention,
State and Tribal Assistance

cc: Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office



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CEW 7/22/97 j1 P 078 120 968 3025C UTO4363

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Ms. April Menzies
Geology/Petroleum Engineering Technician
6209 North Highway 61
Hutchinson, Kansas 67502

4a. Article Number
2078 120 968

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
7-25-97 KES

8. Addressee's Address (Only if requested and fee is paid)
need-LC
JUL 30 1997

5. Received By: (Print Name)
Gail Dennis

6. Signature: (Addressee or Agent)
X Gail Dennis

PS Form 3811, December 1994

Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to

Ms. April Menzies
Geology/Petroleum Engineering Technician
6209 North Highway 61
Hutchinson, Kansas 67502

Certified Fee

Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, and Addressee's Address

TOTAL Postage & Fees \$

Postmark or Date

PS Form 3800, June 1991



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500

DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

JUL 21 1997

Ms. April Menzies
Geology/Petroleum
Engineering Technician
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

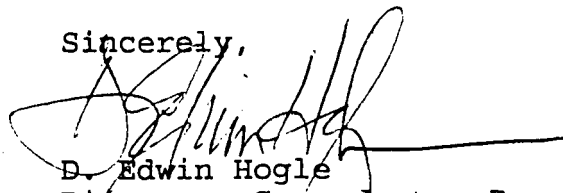
RE: UNDERGROUND INJECTION CONTROL (UIC)
Removal of Wells from UIC Inventory
Ute Tribal 18-03 EPA Permit
No. 2736-02459
Ute Tribal 21-03 EPA Permit
No. 2736-04363
Antelope Creek Field
Duchesne County, Utah

Dear Ms. Menzies:

This letter is in response to your correspondence of July 9, 1997, in which you requested that the Antelope Creek Waterflood Ute Tribal 18-03 and Ute Tribal 21-03 wells be released from our Class II injection well inventory. Both of these wells were included in the UIC Area Permit #UT2736-00000 which was issued July 12, 1994.

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Sincerely,


D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention,
State and Tribal Assistance

cc: Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office



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CONCURRENCE COPY

Ref: 8P2-W-GW

JUL 21 1997

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. April Menzies
Geology/Petroleum
Engineering Technician
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Removal of Wells from UIC Inventory
Ute Tribal 18-03 EPA Permit
No. 2736-02459
Ute Tribal 21-03 EPA Permit
No. 2736-04363
Antelope Creek Field
Duchesne County, Utah

Dear Ms. Menzies:

This letter is in response to your correspondence of July 9, 1997, in which you requested that the Antelope Creek Waterflood **Ute Tribal 18-03** and **Ute Tribal 21-03** wells be released from our Class II injection well inventory. Both of these wells were included in the UIC Area Permit #UT2736-00000 which was issued July 12, 1994.

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Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention,
State and Tribal Assistance

cc: Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas and Mining

Mr. Jerry Kenczka
BLM - Vernal District Office

CEW
8P2-W-GW
7/16/97

8P2-W-GW
7/16/97

7-17-97
LG

8P2-W-GW
7/17/97

8P2-W-GW
7/21/97

LEASE NAME UTE TRIBAL 21-03

DATE: 07-09-1997

WELL NAME #21-03

TIME: 15:05:08

FIELD ANTELOPE CREEK

FILE: UTE21-03

CNTY/ST DUCHESNE, UT

L.ID:

OPERATOR PETROGLYPH OPERATING CO. INC.

FORMATION

TOP OF PERF. 0

PROD. START 0 / 1995

BOT OF PERF. 0

NRI = 83.32 REV. INT. = 20.79

PRODUCTION HISTORY REPORT

PAYOUT POINT = 7/1996

MTH/YR	***** 8/8TH PRODUCTION *****				***** NET PRODUCTION *****				AVERAGE				
	OIL	GAS	CUM OIL	CUM GAS	OIL	GAS	CUM OIL	CUM GAS	OIL/DAY	GAS/DAY	GOR	WATER	DAILY
-----	BBL---	MCF-----	MB-----	MMF-----	BBL---	MCF-----	MB-----	MMF-----	B/D----	M/D----	CF/B	BBL-----	BOE-----
PRIOR			0.000	0.000			0.000	0.000			0	0.0	
1/97	93	18	0.093	0.018	19	4	0.019	0.004	31.0	6.0	194	117.0	32.0
2/97	2213	168	2.306	0.186	460	35	0.479	0.039	79.0	6.0	76	0.0	80.0
3/97	1346	1516	3.652	1.702	280	315	0.759	0.354	43.4	48.9	1126	0.0	51.6
4/97	1610	1508	5.262	3.210	335	313	1.094	0.667	53.7	50.3	937	0.0	62.0
5/97	1494	1810	6.756	5.020	311	376	1.404	1.044	48.2	58.4	1212	0.0	57.9
S.TOT	6756	5020			1404	1044					743	117.0	
REPORT													
TOT.	6756	5020									CUM WATER	117	



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

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JUL 21 1997

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Geology/Petroleum
Engineering Technician
Petroglyph Operating Company, Inc.
6209 North Highway 61
Hutchinson, Kansas 67502

RE: UNDERGROUND INJECTION CONTROL (UIC)
Removal of Wells from UIC Inventory
Ute Tribal 18-03 EPA Permit
No. 2736-02459
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Antelope Creek Field
Duchesne County, Utah

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Director, Groundwater Program
Office of Pollution Prevention,
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cc: Mr. Gilbert Hunt
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